



## CHAPTER 2 | NOAA OPERATIONS, RESEARCH, & FACILITIES BY LINE OFFICE



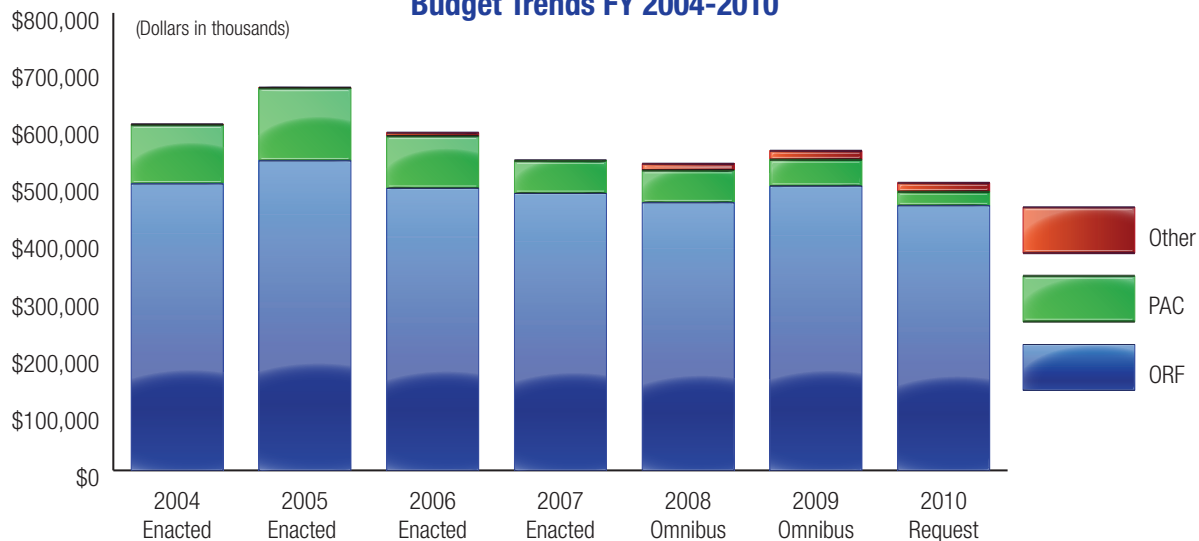
*Katrin Iken (left) and Bodil Bluhm move deep-sea mud from the trawl net to a bucket. The benthic scientists will sieve the mud to find creatures within it for additional research. Photo taken during the 2005 NOAA-sponsored "Hidden Ocean" cruise to study marine life in all realms of the Canada Basin, one of the deepest parts of the Arctic Ocean.*

*Credit: Jeremy Potter*

**NATIONAL OCEAN SERVICE**

(DOLLARS IN THOUSANDS)	FY 2008 OMNIBUS	FY 2009 OMNIBUS	FY 2010 REQUEST	INCREASE (DECREASE)
NOS — ORF				
Navigation Services	\$141,576	\$166,373	\$155,122	(\$11,251)
Ocean Resources Conservation & Assessment	182,752	175,494	159,665	(15,829)
Ocean and Coastal Management	143,602	155,100	147,884	(7,216)
<b>Total, NOS - ORF</b>	<b>467,930</b>	<b>496,967</b>	<b>462,671</b>	<b>(34,296)</b>
Total, NOS - PAC	56,599	46,188	24,385	(21,803)
Total, NOS - Other	11,600	15,600	15,600	0
<b>GRAND TOTAL NOS (Direct Obligations)</b>	<b>\$536,129</b>	<b>\$558,755</b>	<b>\$502,656</b>	<b>(56,099)</b>
<b>Total FTE</b>	<b>1,241</b>	<b>1,240</b>	<b>1,246</b>	<b>6</b>

**NATIONAL OCEAN SERVICE**  
**Budget Trends FY 2004-2010**



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

Other: Environmental Improvement and Restoration Fund; Coastal Impact Assistance Fund; Coastal Zone Management Fund; Damage Assessment and Restoration Revolving Fund



## NATIONAL OCEAN SERVICE

NOAA's National Ocean Service (NOS) is the primary Federal agency responsible for the preservation of coastal resources through the observation, measurement, assessment, and management of the Nation's coastal and ocean areas, as well as by providing critical navigation products and services, and conducting response and restoration activities to protect vital coastal resources. NOS balances environmental protection with economic development by providing the scientific, technical, and management expertise necessary to address the complex challenges of our coastal regions and the Great Lakes.



*NOAA divers installing mooring buoy anchors using an underwater hydraulic drill at the Flower Garden Banks National Marine Sanctuary*

Although coastal population growth has generally reflected the same rate of growth as the entire Nation, the limited land area of coastal counties is increasingly strained by the density of the population growth. This increasing density, coupled with the important economies of coastal areas, makes the task of managing coastal resources increasingly difficult, especially with the Nation's coastal population expected to rise to 165 million by 2015. Growth in coastal areas creates jobs, generates economic prosperity, adds new industries, enhances educational opportunities, and increases tax revenues. However, it also burdens local environments, threatening the very resources that draw people to the coast.

As a national leader for coastal stewardship, NOS promotes a wide range of research and operational activities aimed at developing a better understanding of ocean, coastal, and Great Lakes ecosystems. Research provides the strong science foundation required to effectively manage and advance the sustainable use of our coastal and ocean systems, improve ecosystem and human health, and support economic vitality. NOS provides improvements in the quality, quantity, geographic distribution, and timeliness of ocean and coastal observations. Observations conducted by NOS and their partners are critical components of the Nation's Integrated Ocean Observing System (IOOS) as well as fundamental contributors to the Global Earth Observation System of Systems (GEOSS). NOS mapping, charting, geodetic, and oceanographic activities build on the marine and coastal observations collected to increase the efficiency and safety of maritime commerce, support coastal resource management and address coastal flooding and water quality concerns. NOS protects and restores coastal resources damaged by



releases of oil and other hazardous materials. NOS also protects and manages the special marine areas of the Nations' marine sanctuaries and the Papahānaumokuākea and Rose Atoll Marine National Monuments. Through partnerships with coastal states, NOS oversees the Nation's valuable coastal zones and nationally significant estuarine reserves. Understanding of the coastal environment is enhanced through coastal ocean activities that support science and resource management programs. NOS helps federal, state, local and international managers build the suite of skills and capacity needed to protect, restore, and use coastal ecosystems by providing financial and technical assistance, process and technical skill training, and other applied research.

NOS contributes significantly to achieving two of NOAA's four Strategic Mission Goals: (1) protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management, and (2) support the Nation's commerce with information for safe, efficient, and environmentally sound transportation. While these two goals capture much of the National Ocean Service's activities, NOS also supports and makes important contributions to NOAA's other two mission goals: (1) serve society's needs for weather and water information, and (2) understand climate variability and change in order to enhance society's ability to plan and respond. NOS also contributes to the support goal through organizational excellence, infrastructure, and mission support.

In carrying out its diverse programs and services, NOS forges partnerships to integrate expertise and efforts across all levels of government as well as external partners. This coordinated approach is an essential component of NOS' national effort to protect, maintain, and sustain the viability of coastal communities, economies and ecosystems. The FY 2010 President's Budget Request supports funding and program requirements that enable NOS to deliver a dynamic range of nation-wide coastal and Great Lakes scientific, technical and resource management services in support of safe, healthy and productive oceans and coasts.

## **FY 2010 BUDGET SUMMARY**

NOAA requests a total of \$462,671,000 and 1,229 FTEs to support the continued and enhanced operations of the National Ocean Service. This total includes \$4,929,000 and 0 FTEs for Adjustments to Base (ATB), and a program increase of \$22,348,000 and 6 FTEs.

### **ADJUSTMENTS TO BASE:**

The above ATB request includes an increase of \$4,929,000 and 0 FTEs to fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

### **NOS — ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2010:**

Program changes are summarized at the sub-activity level below. Detailed numeric breakouts are located in Chapter 5, *Special Exhibits*. Descriptions of each request by line item are located in the NOAA FY 2010 Technical Budget.

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#### **NAVIGATION SERVICES**

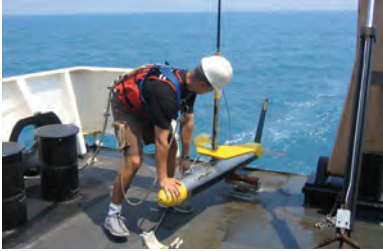
**\$155,122,000**

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NOAA requests an increase of \$5,173,000 and 0 FTEs in the Navigation Services sub activity, for a total of \$155,122,000 and 550 FTEs. The FY 2010 President's Budget requests funding for a suite of navigation



products and services which will help to ensure the safety of marine transportation, while improving the economic efficiency and competitiveness of American commerce. These activities are conducted under the authority of the Hydrographic Services Improvement Act and managed by the Office of Coast Survey (OCS), the Center for Operational Products and Service (CO-OPS) and the National Geodetic Survey (NGS). The Navigation Services subactivity includes three line items: Mapping and Charting, Geodesy, and Tides and Currents. This increase is comprised of two initiatives:



Side scan survey work in Pascagoula, MS ship channel

**Address Survey Backlog and Contracts: NOAA requests an increase of \$1,173,000 and 0 FTEs to conduct hydrographic surveys of critical areas to support safe and efficient navigation.**

NOAA's charting mandate authorizes NOAA to provide nautical charts and related hydrographic information for the safe navigation of maritime commerce for U.S. territorial waters and the U.S. EEZ, a combined area of 3.4 million square nautical miles (SNM), which extends 200 nautical miles offshore from the nation's coastline. The requested funds will augment NOAA's resources focused on surveying the most critical areas according to the priorities laid out in the "NOAA Hydrographic Survey Priorities" document (NHSP). NOAA is responsible for surveying the entire 3.4 million SNM of the EEZ, but the priority for commerce and safe transportation consists of 500,000 SNM of navigationally significant areas. Of the total navigationally significant area, about 4% (~20,000 SNM) have been identified as critical areas in need of survey. These 20,000 SNM are NOAA's highest survey priority. Mariners rely on NOAA's decision support tools to reduce risk and provide a complete understanding of the marine environment in which they must operate.



NOAA Citation on GRAV-D Flight

**Geodesy: NOAA requests an increase of \$4,000,000 and 0 FTEs to collect gravity data for improving elevations and height information.**

With the requested increase, NOAA will begin a multi-year effort to collect airborne gravity data to produce a new national vertical datum. Updating the nation's gravity-based geoid model from 40 cm of accuracy to 2 cm of accuracy across the nation will allow GPS to efficiently establish accurate elevations to improve commerce, to promote economic efficiencies, and to better protect against inundation from storms, flooding, and sea level rise. In 2010, NOAA will focus on coastal areas of the United States and in the out years collect airborne gravity measurements according to its 2007 Gravity for the Redefinition of the American Vertical Datum (GRAV-D) plan, which laid out an efficient process to acquire gravity measurements across the nation and redefine the geoid model based on areas of most critical need. A multi-year, national effort to collect and improve the gravity data used in the geoid model will eliminate errors, and allow efficient, centimeter-level measurement of heights using GPS. A 2009 socio-economic benefits study estimated benefits to the nation of the completed GRAV-D effort funded by this increase to be \$4.8 billion over 15 years, including \$2.2 billion in avoidance costs from improved floodplain management.

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## OCEAN RESOURCES CONSERVATION AND ASSESSMENT

**\$159,665,000**

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An increase of \$12,135,000 and 3 FTEs is requested under the Ocean Resources Conservation and Assessment subactivity for a total of \$159,665,000 and 428 FTEs. Funds are requested under this subactivity to support a range of activities managed by the National Centers for Coastal Ocean Science (NCCOS), the Office of Response and Restoration (ORR), the Coastal Services Center (CSC), the Office of Ocean and Coastal Resource Management (OCRM), and the NOAA Integrated Ocean Observing System (IOOS) Program. These activities are implemented under a range of authorities to protect, conserve, and restore



natural resources and the environmental quality of the Nation's coastal ecosystems. The Ocean Resources Conservation and Assessment subactivity contains three line items, Ocean Assessment Program, Response and Restoration, and National Centers for Coastal Ocean Science. The requested increase is comprised of five initiatives:

**Ocean Assessment Research Plan Implementation: NOAA requests an increase of \$3,000,000 and 1 FTE for the Ocean Research Priorities Plan (ORPP) to develop and improve sensors for ocean biological and physical parameters at multiple spatial and temporal scales.** This request is in direct response to the near-term priorities in the ORPP and consistent with the 2007 Interagency Oceans and Human Health Research Implementation Plan. Over the next five years, NOAA and its partners will markedly increase efforts to develop and apply genomic microarrays and other technologies that will allow for the rapid and accurate detection, identification, and quantification of disease-causing microbes in marine waters and seafood in addition to providing information on changes in gene expression of multiple marine organisms in response to climate change, environmental conditions and disease. Information gained will be used to support improved ecosystem management strategies and protection of public health, including use for beach closure forecasts related to pathogens and harmful algal blooms, fisheries and protected species management, and coastal ecosystem health assessments. This work will enable rapid and cost-effective identification of ocean-borne health threats, thereby enabling actions to protect public and animal health, advance our understanding of how multiple stressors – including climate change – affect coastal ecosystems, and enhance our knowledge of recruitment processes for marine organisms of particular interest.

**Ocean Assessment Research Plan Implementation: NOAA requests an increase of \$3,000,000 and 0 FTE for the Ocean Research Priorities Plan (ORRP) to support end-to-end development and integration of observations, research, and forecast models.** With the requested funding, NOAA will work across federal agencies to provide and integrate observations, research results, and forecasts at regional and system-scales for the ORPP near-term opportunities. Initial implementation of this research priority will require assessment of Federal, regional and state programs, needs and capabilities, as well as the “state of knowledge,” to identify the requirements for specific forecasts and tools. NOAA will build on ongoing agency activities and focus on three primary capability areas: observations, forecasting, and applications. Effective integration of observational and forecast systems with research products will provide coastal resource managers, and emergency, and public health officials with short and long-term forecasts of changing coastal conditions. Key federal partners include USGS, EPA, U.S. Army Corps of Engineers, and the National Science Foundation. This increase will support priorities identified by State, regional, and interagency alliances and working groups such as the Gulf of Mexico Alliance and Great Lakes Interagency Task Force. High-priority research and technology investments, coupled with sound decision-making at all levels, will dramatically enhance community resilience and reduce vulnerability. In five years, coastal planners, resource and emergency managers, and policy makers at all governmental levels will have a wider variety of decision support tools, from diverse observations and models, at their disposal to make the best decisions for their coastal constituents and economies regarding to coastal hazards.



**Gulf of Mexico Regional Collaboration: NOAA requests an increase of \$1,000,000 and 0 FTEs to advance regional coastal resource priorities defined by the five Gulf States of the Gulf of Mexico Alliance.** With the requested funding NOAA will continue to support competitive grants representing the following six priority areas: create hazard resilient coastal communities; ensure healthy beaches and shellfish beds; support habitat conservation and restoration; increase environmental education; promote ecosystem integration and assessment; and reduce nutrient inputs to coastal ecosystems as outlined in the June 2009 regional action plan: *the Governors' Action Plan II for Healthy and Resilient Coasts*. The Gulf of Mexico Alliance is a partnership among state and federal agencies across the states of Alabama, Florida, Louisiana, Mississippi, and Texas, with the goal of significantly increasing regional collaboration to enhance the environmental and economic health of the Gulf of Mexico. At the request of the Council on Environmental Quality (CEQ), NOAA and EPA co-chaired a Federal Workgroup coordinating support from 13 federal agencies to the Gulf of Mexico Alliance to implement the first Governor's Action Plan. The Department of Interior (DOI) has now joined NOAA and EPA as a co-chair to support implementation of the Action Plan II. In this role, NOAA, EPA, and DOI work to increase collaboration among all federal partners, thereby increasing the effectiveness and efficiency of federal action in the Gulf of Mexico region. All actions in the *Governors' Action Plan II* directly support Gulf Coast recovery and contribute to more resilient coastal communities that protect lives and livelihoods. By working together, the five Gulf State Governors are building regional political strength, and are providing a working model of regional ocean governance called for by the U.S. Commission on Ocean Policy.

**Response and Restoration: NOAA requests an increase of \$1,400,000 and 0 FTEs for the development of tools necessary to respond to oil spills and releases of hazardous materials.** The funds will be used to develop tools and techniques related to response and natural resource damage assessment with a strong focus on building and maintaining state-of-the-art 3-D models to predict contaminant movement in the environment 24 hours a day, 7 days a week. NOAA's response activities deliver payoffs in many areas including reduced environmental harm, reduced impact from shipping and fisheries closures, lowering costs of cleanup by finding the most cost-effective approaches, and reduced cost of restoring natural resources realized by cutting transaction costs. In 2008, NOAA received requests for scientific assistance related to 169 environmental incidents, three-quarters of which were oil spills.



Harmful Algal Bloom

**National Centers for Coastal Ocean Science: NOAA requests an increase of \$2,700,000 and 2 FTEs to develop and implement operational harmful algal bloom (HAB) forecasts by creating a national system of forecasts, and a national HAB event response capability.** The funds will build upon the capabilities developed through the current operational forecast system for the eastern Gulf of Mexico. The forecast system will be a collaborative effort among several NOAA offices, along with state, local and federal management agencies, and the research community. This system will be implemented regionally starting with the western Gulf of Mexico (operational in 2010), the lower Great Lakes (operational in 2011), the Gulf of Maine (operational in 2012), California (operational in 2013), and the Pacific Northwest (operational in 2014), and will provide twice weekly comprehensive forecasts and support. The existing operational system for the eastern Gulf of Mexico has been in place for three years and NOAA has issued nearly 400 bulletins in that time in response to HABs. These outbreaks have impacted over 1000 km of coast,



with 90% weekly utilization of the bulletins by over 190 resource managers representing more than 50 organizations. The HAB forecasts and associated models, data, and analysis will permit coastal managers and emergency responders to make sound decisions on reducing the direct human health risk, protecting shellfisheries and shellfish industries by timely changes in management strategies, and reducing economic loss by designing mitigation strategies that are not possible without advance planning. HABs are one of the most scientifically complex and economically significant coastal issues facing the nation. HAB toxins can cause human illness and death, close waters to recreation or seafood harvesting, severely impact tourist economies, alter habitats, and adversely impact fish, endangered species, and other marine organisms. HABs affect virtually every coastal state and have caused an estimated \$1 billion in national economic losses over the past decade.

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**OCEAN AND COASTAL MANAGEMENT****\$147,884,000**

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NOAA requests an increase of \$5,040,000 and 3 FTEs for a total of \$147,884,000 and 251 FTEs for the Ocean and Coastal Management sub activity. The Nation's ocean and coastal areas represent some of the most ecologically and economically important regions and this request will continue to support and advance NOAA's important work to sustain these regions. These activities are conducted primarily under the authority of the Coastal Zone Management Act (CZMA) and the National Marine Sanctuaries Act (NMSA) and implemented by the Office of Ocean and Coastal Resource Management (OCRM) and the Office of National Marine Sanctuaries (ONMS). This subactivity includes two line items: Coastal Management, and Ocean Management. This increase is comprised of three initiatives:

**Coastal Zone Management National Program: NOAA requests an increase of \$1,140,000 and 0 FTEs to provide national leadership through the CZMA National Program for implementation of the Coastal Zone Management Act (CZMA).**

These funds support critical needs as NOAA works with numerous partners to implement cooperative agreements with 34 coastal states, as well as operational and construction grants for the 27 National Estuarine Research Reserves. The funds will enable NOAA to conduct necessary reviews in preparation of designating a National Estuarine Research Reserve in Wisconsin and establishing a coastal zone management program in Illinois; begin developing new management approaches that better integrate coastal management programs across all levels of government and disciplines; and focus on establishing and achieving specific targeted outcomes from NOAA's coastal programs. NOAA will enhance its ability to understand and respond to national issues and trends in coastal resource management; and build capacity to enhance programmatic evaluations of CZM programs through the establishment of state-level performance goals. The convergence of increasing population, increased competition for use of coastal lands and ocean areas, loss of natural resources, and increasing coastal hazards affect both the national economy as well as the daily lives of Americans. While only 17% of the Nation's land area is coastal, it supports over 50% of our population and generates nearly 60% of the U.S. gross domestic product. The magnitude, scope, complexity, and urgency of these issues require national leadership, especially since climate change is expected to amplify these challenges. Since the Nation's coastal communities and economies depend on healthy coastal resources, NOAA's request ensures adequate resources for programs to meet both existing requirements and emerging priorities for coastal and ocean management. Without these, coastal and ocean management will become more fragmented rather than better integrated.

*Coastal Zone Management*

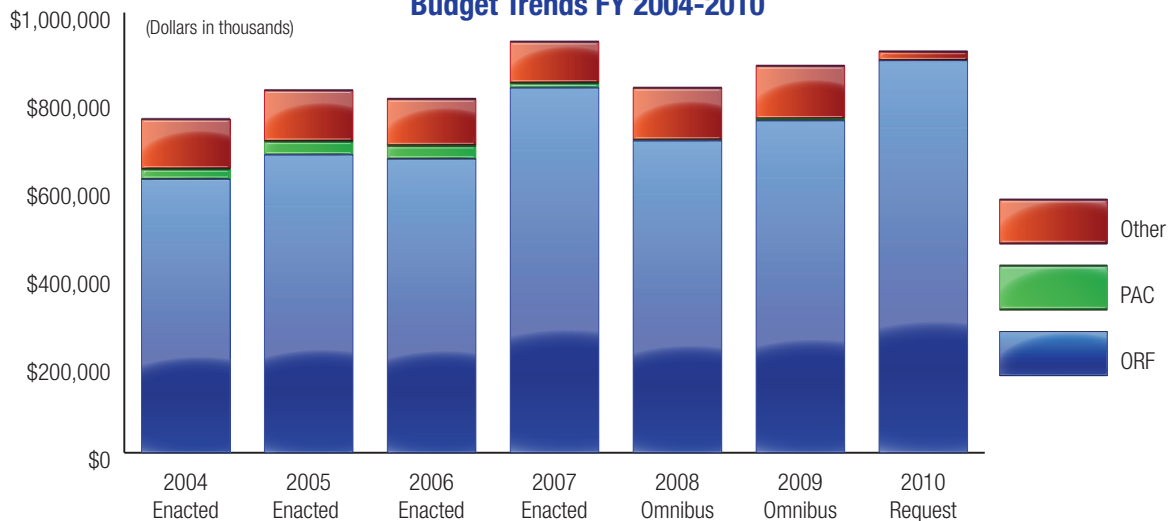


**Coastal Management: NOAA requests an increase of \$2,000,000 and 0 FTEs for Coastal Stewardship to convene a task force of key public, private, non-governmental, and university representatives to revise the future of the nation's coasts and NOAA's role.** The Coastal Communities Task Force (CCTF) will specifically address enhancing coastal community economies while protecting and conserving ecologically sensitive areas. The purpose of the CCTF is to chart a new course of effective, meaningful actions for management of the nation's valuable coasts based on policy reform and strategic action at the local planning level. The CCTF will directly address and coordinate the implementation of major recommendations of the U.S. Ocean Commission, Pew Commission, the Joint Ocean Commission Initiative (JOICI), regional ocean governance initiatives, and various climate change reports. In particular, this effort will increase NOAA's effectiveness in implementing the CZMA goals and objectives and NOAA's coastal strategy. NOAA has an important role to play in improving the health of coastal ecosystems and communities. Under the CZMA, NOAA has a responsibility to assist states and federal agencies in planning and development within state and federal waters. NOAA's role is to bring leadership for interagency coordination and strong state and regional ties through the Coastal Zone Management Program, Sea Grant, National Estuarine Research Reserves, Office of Habitat Conservation and other partnerships and programs to support the CCTF. Additionally, NOAA will contribute management and scientific expertise in coastal zone management, marine mapping and planning, remote sensing, and observing, in support of the Task Force.

**Energy Licensing and Appeals: NOAA requests an increase of \$1,900,000 and 3 FTEs to meet statutory, regulatory, and mission requirements relating to traditional, new, and alternative ocean and coastal energy development responsibilities.** The requested increase will enable NOAA to more effectively administer its current legal authorities and respond to anticipated requirements related to ocean and coastal energy development. As a result, NOAA will be able to make sound decisions on behalf of the public and NOAA trust resources, while providing timely and complete responses to interested parties seeking to exercise their rights under the law. NOS will assist in incorporating the updated laws and regulations into state coastal zone management programs, as required by the CZMA. NOAA will also increase training for states, federal agencies, and the private sector to improve the understanding and application of the Federal Consistency provisions of the CZMA on proposed ocean and coastal energy projects. Finally, NOAA will lead policy coordination of Federal Consistency appeals to provide increased management input and to meet significant new, stricter time and process requirements of the Energy Policy Act of 2005. As the Nation strives to address current and projected energy needs, it is increasingly turning to the ocean and coasts to provide and transport traditional energy supplies and emerging alternative methods to harness ocean power. NOAA is responsible for assessing the potential effects on trust resources and existing coastal uses of concern.

**NATIONAL MARINE FISHERIES SERVICE**

(DOLLARS IN THOUSANDS)	FY 2008 OMNIBUS	FY 2009 OMNIBUS	FY 2010 REQUEST	INCREASE (DECREASE)
NMFS — ORF				
Protected Species Research and Management	\$163,992	\$173,945	\$243,538	\$69,593
Fisheries Research and Management	327,260	360,826	421,467	60,641
Enforcement and Observers	84,894	90,085	103,132	13,047
Habitat Conservation and Restoration	50,245	53,655	44,023	(9,632)
Other Activities Supporting Fisheries	81,949	75,494	78,482	2,988
<b>Total, NMFS - ORF</b>	<b>708,340</b>	<b>754,005</b>	<b>890,642</b>	<b>136,637</b>
Total, NMFS - PAC	2,021	4,600	0	(4,600)
Total, NMFS - Other	118,722	120,369	21,110	(99,259)
<b>GRAND TOTAL NMFS (Direct Obligations)</b>	<b>\$829,083</b>	<b>\$878,974</b>	<b>\$911,752</b>	<b>\$32,778</b>
<b>Total FTE</b>	<b>2,748</b>	<b>2,656</b>	<b>2,823</b>	<b>167</b>

**NATIONAL MARINE FISHERIES SERVICE**  
**Budget Trends FY 2004-2010**


ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

Other: Fishermen's Contingency Fund; Foreign Fishing Observer Fund; Fisheries Finance Program Account; Promote and Develop; Pacific Coastal Salmon Recovery Fund; Marine Mammal Unusual Mortality Event Fund; Federal Ship Financing Fund; Environmental Improvement and Restoration Fund; Limited Access System Administration Fund



## NATIONAL MARINE FISHERIES SERVICE

NOAA's National Marine Fisheries Service (NMFS) is responsible for the management and conservation of living marine resources within the United States Exclusive Economic Zone (EEZ), the area extending from three to 200 nautical miles offshore. NMFS also provides critical scientific and policy leadership in the international arena and plays a key role in the management of living marine resources in coastal areas under state jurisdiction. NMFS implements science-based conservation and management measures and actions aimed at sustaining long-term use and promoting the health of coastal and marine ecosystems.



*Chesapeake Bay Shellfish Farmers*

NMFS' mission is to maximize benefits to the Nation from the protection and use (commercial, recreational, and aesthetic) of living marine resources. To achieve its mandates, NMFS works to ensure the long-term health, productivity, and diversity of our Nation's ocean and coastal resources including fish, invertebrates, sea turtles, whales, and other marine and coastal species and their habitats. NMFS is charged with balancing these protection mandates with multiple uses and interests in marine resources, including commercial, recreational, and subsistence fishing; aquaculture; and marine and coastal observation and research. Successful management relies upon NMFS' strong scientific and research competency to support the challenging public decision-making processes associated with NMFS' stewardship responsibilities.

NMFS continues to develop and track key performance measures that demonstrate meaningful results to the American public. In FY 2010, NMFS will continue to focus its resources on building and maintaining fish stocks at productive levels; improving the status of overfished fisheries and endangered and threatened species and ensuring those species have adequate population assessments and forecasts; implementing plans to rebuild, recover, and conserve major fish stocks and protected species; and restoring habitat for NOAA trust resources.

In FY 2010, NMFS will continue to support new requirements under the reauthorized Magnuson-Stevens Act including ending overfishing, promoting market-based management approaches, improving recreational fisheries



data collection, reducing bycatch of protected living marine resources, and addressing illegal, unregulated, and unreported (IUU) fishing.

In addition, the U.S. Ocean Action Plan specifies that an effective U.S. ocean policy must be grounded in an understanding and management of ecosystems. This ecosystem approach is the principal management tool that will help NMFS meet its immediate and long-term goals, including: Implementing the reauthorized Magnuson-Stevens Fishery Conservation and Management Act (MSRA); Doubling the number of Limited Access Privilege Programs (LAPPs) to 16 by 2011; Building a strong aquaculture program; Ending overfishing; Providing adequate consultations under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA); Ensuring effective science and management; Strengthening environmental compliance for defense and energy-related activities in our oceans and coastal areas; Serving as an environmental leader, domestically and internationally.

NMFS will also collaborate with other agencies and organizations on an ecosystem-based approach to develop indicators of ecosystem status and trends, and on joint strategies to address priority regional ecosystem issues.

The FY 2010 President's Budget Request supports funding and program requirements to enable NMFS to be effective stewards of living marine resources for the benefit of the Nation through science-based conservation and management and the promotion of ecosystem health.

### **FY 2010 BUDGET SUMMARY**

NOAA requests a total of \$890,642,000 and 2,818 FTEs to support the continued and enhanced operations of the National Marine Fisheries Service. This total includes an increase of \$12,266,000 and 11 FTEs for Adjustments to Base (ATB), and a net program change of \$190,649,000 and 156 FTEs.

#### **ADJUSTMENTS TO BASE:**

The above ATB request includes an increase of \$12,266,000 and 11 FTEs to fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration. Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

#### **NMFS – ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2010:**

Program changes are summarized at the sub-activity level below. Detailed numeric breakouts are located in Chapter 5, *Special Exhibits*. Descriptions of each request by line item are located in the NOAA FY 2010 Technical Budget.

#### **PROTECTED SPECIES RESEARCH AND MANAGEMENT**

**\$243,538,000**

NOAA requests an increase of \$81,171,000 and 65 FTEs in the Protected Species Research and Management sub-activity, for a total of \$243,538,000 and 737 FTEs. This increase is comprised of five initiatives:



*Ribbon Seal in the Bering Sea*

**Protected Species Research and Management: NOAA requests an increase of \$5,550,000 and 20 FTEs to increase NMFS' capacity to deliver scientifically sound and legally defensible Endangered Species Act consultations and enhance conservation of listed species by other federal action agencies.** Section 7 of the ESA requires all Federal agencies consult with NMFS to ensure that their actions will not jeopardize a marine listed species, destroy or adversely modify its designated Critical Habitat. Through the consultation process, NMFS helps agencies to tailor their actions to avoid further peril and help conserve those species. In 2010 and for the next few years, NMFS expects to face an increase in the number of interagency consultations on economically critical Federal actions. In order to provide technical assistance and consultation services to the EPA, USDA, and other Federal agencies in a timely manner and avoid future litigation, additional capacity is required. With these funds, NMFS will: (1) conduct ESA Section 7 consultations with the Bureau of Reclamation, U.S. Army Corps of Engineers, U.S. Forest Service, and Bureau of Land Management on various land management activities including large scale management plans, timber sales, and water management projects; (2) conduct ESA Section 7 consultations for transportation projects including those associated with the Safe Accountable Flexible Efficient Transportation Equity Act (SAFETEA-LU); (3) conduct ESA Section 7 consultations on energy projects, including additional new workload to complete consultations with the Office of Pipeline Safety; (4) conduct consultations with the U.S. Navy on their training activities, as well as day-to-day operations of military installations; (5) conduct consultations with the National Ocean Service, the U.S. Navy, and other Federal agencies operating vessels in the marine environment to address the potential to strike marine mammals, including the North Atlantic Right Whale (6) and provide technical assistance to EPA and other federal agencies to implement conservation measures and revise national water quality standards.

**Species Recovery Grants: NOAA requests an increase of \$60,000,000 and 7 FTEs to conduct cooperative conservation and recovery implementation with States, tribes and other entities assisting protected species recovery under the Species Recovery Grants program.** NOAA currently has jurisdiction over 68 threatened or endangered species, 2 species that have been proposed for listing, and 14 "candidates" for listing under the ESA. Recovery of listed species is dependent on collaboration and cooperation with partners, States, tribes, and other entities; however, most partners do not have adequate resources to address necessary recovery actions and Federal assistance is necessary to ensure their ability to engage in an effective partnership. The requested funds will be used by NMFS's partners to implement priority recovery actions for listed species including restoring habitat necessary to recover listed species; monitoring population trends of listed species; partnering with other States to conduct cross-jurisdictional conservation actions; developing conservation plans to address incidental take of listed species; and educating the public about the conservation of ESA listed species. Partners in States with ESA listed salmon may apply for these funds for salmon recovery projects similar to those funded through the Pacific Coastal Salmon Recovery Fund.



**Marine Mammals: NOAA requests an increase of \$5,300,000 and 10 FTEs to conduct conservation and recovery actions.** This increase is comprised of four sub-initiatives:

- » **Hawaiian Monk Seal Recovery Plan: NOAA requests an increase of \$1,500,000 and 4 FTEs to implement the management and conservation recovery actions as called for in the 2007 Final Hawaiian Monk Seal Recovery Plan.** Hawaiian monk seals are critically endangered, with a downward population trajectory expected to fall below 1,000 individuals in the next 10 years. As a result, this species may become extinct within 50 years without human intervention. In addition, monk seal numbers, while decreasing throughout most of the species' range, are increasing in the highly populated main Hawaiian Islands, which create additional management challenges. These funds will be used to enhance survival of juvenile monk seals by transporting seals to areas with higher survivability potential; bring juveniles into captive care to improve their nutritional status and then releasing them; provide medical care to free-roaming seals; and manage shark predation on juvenile seals. Specific management activities within the main Hawaiian Islands include eliminating or mitigating take of this endangered species by commercial and recreational fisheries, and protecting mother-pup pairs from human disturbance and domestic animals on main islands beaches.



*Hawai'ian Monk Seal*

- » **Cook Inlet Beluga Whale: NOAA requests an increase of \$1,000,000 and 0 FTEs to support science and management activities for the Cook Inlet Beluga Whale.** This species was listed as "endangered" under the Endangered Species Act (ESA) in October 2008 and as "depleted" under the Marine Mammal Protection Act (MMPA) in June 2000. Under the mandates of the MMPA and ESA, NMFS must work to conserve and recover listed marine mammals. NMFS estimates this population once had numbered as many as 1,300 whales, and the most current estimate is 375 whales. The requested funds will be used to support research factors limit recovery, recovery plan development, enforcement activities, and annual monitoring. Funds will also support the Federal consultation process to allow Federal actions to proceed without jeopardizing survival and recovery of the species.



*Tagging a Cook Inlet Beluga Whale*

- » **Marine Mammal Take Reduction Program: NOAA requests an increase of \$1,500,000 and 2 FTEs to implement the Marine Mammal Take reduction program to protect marine mammal populations from commercial fishing activities.** The Marine Mammal Protection Act (MMPA) specifies that NMFS develop and implement take reduction plans to assist in the recovery or prevent the depletion of marine mammal stocks that interact with potentially harmful commercial fisheries activities. Funding will allow NMFS to convene a new Take Reduction Team (TRT) to develop a Take Reduction Plan (TRP), and conduct marine mammal stock assessments and monitoring of fisheries interactions in Alaska and the Gulf of Mexico. The immediate goal of the TRP is to reduce the incidental serious injury or mortality of marine mammals from commercial fishing within six months of the plan implementation.



Bearded Seal

» **Ice-dependent Seals: NOAA requests an increase of \$1,300,000 and 4 FTEs for marine mammal research and recovery actions for ice-dependent seals identified as Species of Concern, which have the potential to be listed under the Endangered Species Act (ESA).** NMFS is currently conducting a status review to make a listing determination of three ice seal species: ring, spotted and bearded seals. Threats to ice seals include decreases in the species numbers due to loss of habitat as a result of climate change. At present, NMFS only has limited knowledge of the life history and ecological requirements of ice seals, as well as limited capacity to conduct recovery planning, recovery plan implementation, and potential regulation of ice seals under Section 7 of the ESA. Should NMFS list any of the ice seals under the ESA, a recovery plan will be written, and recovery measures may be required. The requested increase will be used to study abundance and distribution, seasonal migrations and habitat requirements, genetic discreteness and stock structures of these seals. NOAA will determine the factors for decline and develop a plan to rebuild the stock to a sustainable level. They will also support the Federal consultation process to allow Federal actions to proceed without jeopardizing survival and recovery of the species.

**Atlantic Salmon: NOAA requests an increase of \$2,996,000 and 0 FTEs to support the recovery of endangered Atlantic salmon and to address habitat needs in key watersheds historically used by Atlantic salmon.** Due to habitat impacts such as dam construction, pollution, and over-harvesting, Atlantic salmon populations have declined precipitously. With the requested funds, NOAA will support ecosystem-based habitat restoration efforts to improve habitat for all stages of the salmon life cycle. NOAA will provide technical assistance to projects addressing river barriers and habitat threats that prevent Atlantic salmon from utilizing upstream habitat critical for reproduction and growth. This funding supports the Atlantic Salmon Recovery Plan and will support ongoing management and research recovery efforts.



Coho Salmon

**Pacific Salmon: NOAA requests an increase of \$7,325,000 and 28 FTEs to accelerate development of genetic stock indicators with the intent to improve management of the ocean fishery by minimizing bycatch of depleted Pacific salmon stocks.** Funding will support participation of NMFS in interagency activities such as recovery of listed species of anadromous fish in the Ventura and San Joaquin river watersheds. Additionally, the increase will provide for Habitat Conservation Planning, Recovery Implementation with Local Partners, Klamath Salmon Recovery and Planning, and Section 7 consultations with EPA, and for Salmon Science and support.

## FISHERIES RESEARCH AND MANAGEMENT

**\$421,467,000**

NOAA requests an increase of \$85,178,000 and 46 FTEs in the Fisheries Research and Management sub-activity, for a total of \$421,467,000 and 1,542 FTEs. This increase is comprised of sixteen individual initiatives, nine of which are under the Fisheries Research and Management Program:

**Fisheries Research and Management Programs: NOAA request an increase of \$39,109,000 and 32 FTEs for the fisheries research and management program sub-activity.** This increase is comprised of nine sub-initiatives:



- » **Fisheries Research and Management Programs: NOAA requests an increase of \$12,000,000 and 12 FTEs to implement Annual Catch Limits (ACLs) and Accountability Measures (AMs) to end and prevent overfishing as required the MSRA.** Overfishing has a detrimental impact on the ecological and economic sustainability of fisheries, negatively affecting fishing communities, industry and recreational interests and other marine resources. The 2006 amendments to the Magnuson-Stevens Fishery Act require NOAA to end overfishing by implementing ACLs and AMs in all fisheries by 2011. For fisheries where overfishing is currently occurring, ACLs and AMs must be implemented by 2010. An ACL limits the amount of catch in a particular year at a level that ensures long-term stability. Accountability Measures (AMs) are used to correct for instances where the ACL is exceeded. The requested funds will support enhanced fishery management systems in the six NOAA Fisheries regions, including: implementing necessary regulations to establish and upgrade fishery data collections for monitoring ACLs; improving regional ACL management systems to ensure that timely management action can be taken to prevent ACLs from being exceeded; analyzing fishery data throughout the season to determine whether management action is needed (e.g., to close a fishery when it reaches its ACL or implement accountability measures); implementing AMs as needed; and monitoring the performance of ACLs and AMs each year and continuing to improve management systems if they are underperforming.
- » **Fisheries Research and Management Programs: NOAA requests an increase of \$1,600,000 and 0 FTEs to fund commercial vessel charter days in lieu of the NOAA Vessel *John N. Cobb*.** NOAA Ship *John N. Cobb* was retired on August 13, 2008. This vessel provided critical support for the mission of Alaska Fisheries Science Center's Auke Bay Laboratory and National Marine Mammal Laboratory. There are currently no plans to replace the vessel with another NOAA vessel. This request will provide charter vessel support for the NMFS Alaska Fisheries Science Center's fishery-independent surveys, habitat assessments, longstanding marine mammal research, and logistical support of the Little Port Walter remote field station in southeast Alaska. This level of funding will provide approximately 160 days at sea annually, depending upon fuel costs.
- » **Fisheries Research and Management Programs: NOAA requests an increase of \$2,500,000 and 0 FTEs for data collection and analysis to improve our understanding of the fishery impacts of hurricanes, our efforts to mitigate those impacts, and our ability to minimize the impacts of future storms.** NMFS will build upon ongoing activities in the following areas: prioritize fisheries and areas for field surveys and assessments; design and conduct select field surveys; adapt current ecosystem models to assess storm impacts; predict the benefits and costs associated with specific habitat recovery and restoration programs; and expand community assessment activities to include economic surveys. The funding will support time on ships and other platforms for surveys of fish, shrimp, other living marine resources as well as social and economic surveys of the fishing industry and fishing communities. This program provides the data and core assessments needed to support fisheries management in the hurricane-prone regions of the U.S. coast.

*John N. Cobb*



*Mutton Snapper, Florida Keys*

- » **Fisheries Research and Management Programs: NOAA requests an increase of \$3,000,000 and 8 FTEs to implement the international requirements of the reauthorized Magnuson-Stevens Fishery Conservation and Management Act (MSRA).** This increase will support participation and leadership for international obligations under the Convention on the Conservation and Management of Highly Migratory Fish stocks in the Western and Central Pacific Ocean as mandated by MSRA. This increase will also support the implementation of IUU/bycatch identification, consultation and certification procedures, and collection of data to support this activity with IUU/bycatch nations and governing Regional Fisheries Management Offices.
- » **Fisheries Research and Management Programs: NOAA requests an increase of \$3,000,000 and 10 FTEs to sustainably manage three new Marine National Monuments (MNM) in the Pacific Ocean.** These new National Monuments will encompass nearly 200,000 square miles, and together represent the largest marine reserve in the world. Management of this area requires NOAA to conduct fisheries and living marine ecosystem observation and monitoring, support the scientific and administrative needs associated with expanding the Fagatele Bay National Marine Sanctuary, develop a management plan and monument advisory council, conserve Essential Fish Habitat (EFH) designations, and consult on protected species. NOAA will conduct integrated living marine resource habitat surveys and biogeographic characterizations to establish baseline status of marine ecosystems in the MNMs; deploy moored instruments to support a time series of observations that will enable monitoring of ecosystem status and health; collect biological samples to support development of improved LMR population assessments and ecosystem models to define the ecological roles and vital rates of fish components of MNM ecosystems; and design and initiate studies to establish socioeconomic baseline and potential changes associated with MNM designation. In addition, NOAA will assess the potential impacts to EFH and protected species from any proposed fisheries management actions or any proposed non-fishing activities within the Monuments, including ecotourism, shoreline stabilization projects, or development of infrastructure.
- » **Fisheries Research and Management Programs: NOAA requests an increase of \$5,000,000 and 0 FTEs to support the Comparative Analysis of Marine Ecosystem Organization (CAMEO) which strengthens the scientific basis for an ecosystem approach to the stewardship of our ocean and coastal living marine resources.** The program will support fundamental research to understand complex dynamics controlling ecosystem structure, productivity, behavior, resilience, and population connectivity, as well as effects of climate variability and anthropogenic pressures on living marine resources and critical habitats. CAMEO encourages the development of multiple approaches, such as ecosystem models and comparative analyses of managed and unmanaged areas (e.g., marine protected areas (MPAs)) that can ultimately form a basis for forecasting and decision support.
- » **Fisheries Research and Management Programs: NOAA requests an increase of \$1,902,000 and 0 FTEs to streamline and modernize the fishery plan development and regulatory analysis, evaluation, and implementation capabilities of the Fisheries Management Program.** This request will support



the complete process of developing fishery management recommendations through their eventual analysis, approval, and implementation. With the request funding, NOAA will improve the quality and timeliness of regulatory processes and policy development for its Fishery Management Program through comprehensive impact analyses, full and timely consideration of all relevant issues, and compliance with all applicable laws and procedures. NOAA will be able to efficiently address policy issues early in the regulatory process, rather than later when it becomes difficult to comprehensively address a new and possibly contentious issue.

- » **Fisheries Research and Management Programs NOAA requests an increase of \$5,003,000 and 0 FTEs to support the NOAA National Marine Fisheries Service (NMFS) Pacific Islands Regional Office (PIRO) and Pacific Islands Fisheries Science Center (PIFSC) in Hawaii.** The increase is a realignment of funding from the Other Projects budget line and provides resources needed for NOAA to protect, restore, and manage the use of coastal and ocean resources in the Pacific Islands Region through an ecosystem approach to management. NOAA's request provides funding for 33 existing FTEs, supports more effective science-based fishery management decisions, improves grants management, advances peer-reviewed ecosystem science, and institutes overall organizational management efficiency.
- » **Fisheries Research and Management Programs: NOAA requests an increase of \$5,104,000 and 2 FTEs to support emergent needs in the areas of pelagic fisheries, West Coast groundfish, Atlantic Bluefin tuna, and regional science and operations.** This increase includes \$1,250,000 to support competitively-funded research projects under the Pelagic Fisheries Research Program; \$1,899,000 for scientific support of West Coast groundfish stock management, including conducting resource surveys and biological studies, managing the observer program, and preparing stock assessments; \$1,100,000 for observer coverage of pelagic longline fishery of Atlantic Bluefin tuna in the Gulf of Mexico; \$590,000 to improve regional marine ecosystem based management strategies; and \$265,000 in base funding restoration.

*Atlantic Bluefin Tuna*

**Expand Annual Stock Assessments: NOAA requests an increase of \$9,900,000 and 6 FTEs to update fish stock assessments to support implementation of annual catch limits (ACLs) as required by MSRA.** This increase will support resource surveys over larger geographic areas and habitats to monitor the abundance of more fish stocks; refine mathematical and statistical models that will produce forecasts of ACLs; hire highly specialized staff to conduct assessments with these models; and include ecosystem considerations in more assessments. NMFS will take a multifaceted, tiered approach to update stock assessments to implement ACLs. For stocks that are already periodically assessed at an adequate level, NMFS will update these assessments. For stocks with currently inadequate assessments, NMFS will expand resource surveys and assessment efforts. For those stocks that lack sufficient data to conduct an adequate assessment in the near term, NMFS will analyze data from more data-rich stocks to develop proxies that can be used to set ACLs for the data-limited stocks.

*Bongo Net Sampling*



**Economics and Social Sciences Research: NOAA requests an increase of \$3,271,000 and 5 FTEs to implement economic analyses projects.** This request will enable NOAA to address significant economic and social data gaps in major federal fisheries and to develop decision support tools to conduct MSRA-mandated cost-benefit analyses of regulatory options such as Annual Catch Limits (ACLs) and Limited Access Privilege Programs (LAPPs). Specifically, this request enables NMFS to: (1) develop decision support tools that will enable NMFS to efficiently assess the management impacts on fishery participants, shoreside firms, and fishing communities (sales, income, and employment) in a timely manner; and (2) significantly expand NMFS' economic and social data that enable NMFS to identify management options that impose the least cost on stakeholders and achieve the greatest benefit to society. These activities are important components of our overall FY2010 MSRA funding request.



*Chinook Salmon*

**Salmon Management Activities: NOAA requests an increase of \$16,876,000 and 0 FTEs to implement Annex IV of the Pacific Salmon Treaty.** This increase includes \$376,000 to support existing program requirements not provided for in the Omnibus Appropriations Act of 2009. The funds will support the commitments of Alaska and Washington to fulfill the agreements to conserve the shared Chinook salmon stocks between the United States and Canada. An increase of \$7.5 million will support projects to assist in recovery of critical Puget Sound salmon stocks listed under the ESA. Projects supported by these funds will augment the benefits from harvest reductions provided in the new agreement. Additional funding of \$7.5 million in FY 2010 will go towards mitigating the economic consequences of Alaska's reduction of allowable annual Chinook harvests in Southeast Alaska. This request also includes \$1.5 million for a coded wire tagging program with Canada to improve salmon data collection and fishery monitoring in the United States.

**Regional Councils and Fisheries Commissions: NOAA requests an increase of \$4,000,000 and 0 FTEs to provide the eight Regional Fishery Management Councils with the additional resources necessary to set, evaluate, and revise annual catch limits (ACLs) and accountability measures (AMs) to end overfishing as required under the MSRA.** The Regional Councils are critical NMFS' partners for successful fisheries management, yet they face funding shortfalls for their increased responsibilities under MSRA. The regional councils will use the funds to evaluate fishery management plans to determine appropriate ACLs and AMs and develop measures to implement ACLs and AMs. The regional councils will also use the funds for the annual process of reviewing the best available scientific information and setting the appropriate ACLs for stocks in every fishery. The views and experiences of the Regional Council membership, which includes commercial and recreational industry, federal agencies, the conservation community, and State fishery managers, are required for sound decision making during revisions to the fishery management plans required under the Magnuson-Stevens Act. Incorporating fisheries data analysis and stakeholder input for evaluation and revision of the fishery management plans is necessary to meet legislated requirements to end and prevent overfishing, ensure long-term sustainability of commercial and recreational harvests, and maximize the economic and social benefits of U.S. fisheries.



**Fisheries Statistics: NOAA requests an increase of \$4,771,000 and 0 FTEs to address MSRA requirements for enhanced monitoring of recreational and commercial fisheries.** Funds will be used to continue development of a state–federal national registry program for marine recreational fishing participants, expand commercial fisheries biological sampling programs, and expand electronic reporting of commercial fisheries landings. This request will support state efforts needed to expand the federal registry into a state–federal National Registry of recreational fishing participants for both federal and state waters. Funding will help states to (1) collect more complete and reliable phone contact information for current license holders, (2) register fishing participants currently excluded from licensing, and (3) provide more timely delivery of up-to-date participant contact information to the National Registry. This increase will also support expansion of commercial fisheries biological sampling and electronic reporting programs. With this request, NMFS will upgrade the quality and timeliness of the fisheries statistics used in fish stock assessments and fishery management decisions by expanding efforts to: develop and maintain more complete, up-to-date registries of anglers and for-hire fishing vessel operators in all states; collect more samples of commercially caught fish for size measurements and age determination; and report commercial fisheries landings in a more timely manner. These activities are important components of our overall FY2010 MSRA funding request.

**Survey and Monitoring Projects: NOAA requests an increase of \$6,251,000 and 0 FTEs to increase NOAA's ability to administer survey and monitoring projects.** This increase will support fishery-independent surveys, fishery monitoring, and research in the Pacific Ocean, Alaskan waters, the Gulf of Mexico, and the Northwest Atlantic. This increase will enable NOAA and partners to generate scientific data needed to improve the scientific basis for managing fisheries toward optimum yield and to determine annual catch limits (ACLs) in accordance with the MSRA.

**Fisheries Oceanography/Integrated Ecosystem Assessments: NOAA requests an increase of \$1,000,000 and 3 FTEs to support the creation of integrated ecosystem assessments (IEAs) for the nation.** IEAs provide the science for NOAA's ocean and coastal zone management and legislative mandates by integrating ecological, climatic and economic data into forecast models, assessments and decision support tools. NOAA's stakeholders are demanding improved stock assessments and finer-scale spatial and temporal information because of new MSRA requirements. With this increase, NOAA will integrate ocean biological (e.g. plankton, fish, marine mammals), physical (e.g. currents, climate), chemical (e.g. pollution, nutrients), and human (e.g., fishing pressure, coastal development) data into ecological assessments that managers and the public can use for managing coastal and ocean ecosystems in the California Current. Additionally, NOAA will assemble, catalog, and make data accessible in anticipation of future IEA development in the Northeast Shelf and Gulf of Mexico regions.

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**ENFORCEMENT AND OBSERVERS/TRAINING****\$103,132,000**

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NOAA requests an increase of \$12,600,000 and 41 FTEs in the Enforcement and Observers/ Training sub activity, for a total of \$103,132,000 and 296 FTEs. This increase is comprised of two initiatives:



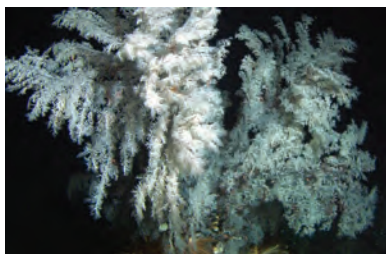
**Enforcement: NOAA requests an increase of \$7,600,000 and 22 FTEs to satisfy the enforcement requirements of the MSRA.** MSRA mandates that NOAA end overfishing and impose annual catch limits on fisheries experiencing overfishing by 2010 and on all managed fisheries by 2011. To achieve this new requirement, NOAA will use these funds to enhance enforcement capacity to gain and maintain compliance with these additional management measures. Of this request, \$3,200,000 and 10 FTEs will be used to implement limited access privilege programs (LAPPs) and the use of a sector management approach. \$1,000,000 will go to the Cooperative Enforcement with States program to be distributed to State and Territorial enforcement partners based on a NOAA assessment of stressed fish stocks. \$900,000 and 1 FTE will be provided to the Vessel Monitoring program to allow expansion of the program and the ability of the infrastructure to support communication and data processing requirements, and \$900,000 for enforcement and surveillance to distribute 4 enforcement officers throughout the nation. In addition, \$1,600,000 and 7 FTEs will be used to build upon the program initiated in the FY 2009 President's Budget to create a focused analytical and investigative capacity within the Office for Law Enforcement (OLE) to combat illegal, unregulated and unreported (IUU). This request is an important component of our overall FY 2010 MSRA funding request.

**Observers & Training: NOAA requests a net increase of \$5,000,000 and 19 FTEs for the National Fisheries Observer Program to improving observer coverage in an increasing number of fisheries with insufficient bycatch data.** Funding will specifically be targeted to meet the requirements of the MSRA for implementation of annual catch limits in six regional fisheries. Comprehensive catch and bycatch information is an essential component of all stock assessments and is necessary for the development of effective fisheries and protected resource management strategies. This funding will allow the National Observer Program to supplement observer coverage in three currently observed fisheries and to implement three new observer programs. The Observer Program will also evaluate and incorporate cost-effective monitoring of catch and bycatch. This request is an important component of our overall FY 2010 MSRA funding request.

## HABITAT CONSERVATION AND RESTORATION

**\$44,023,000**

NOAA requests an increase of \$1,000,000 and 1 FTE in the Habitat Conservation and Restoration sub activity, for a total of \$44,023,000 and 235 FTEs. This increase is comprised of one initiative:



*Christmas Tree Coral*

**Sustainable Habitat Management: NOAA requests an increase of \$1,000,000 and 1 FTE to support priority activities of the MSRA-mandated *Deep Sea Coral Research and Technology Program*.** This is an important component of our overall FY 2010 MSRA funding request. Recent research has revealed that coral and sponge habitats with very high biological diversity exist in deep ocean areas of many U.S. marine ecosystems. These areas are vulnerable to damage from bottom-tending fishing gears, energy exploration and production, deployment of cables and pipelines, and other human activities. Recovery from damage may take decades to centuries as most deep sea corals grow slowly. The President's *Ocean Action Plan* and the U.S. Commission on Ocean Policy calls for enhanced research on, and surveying and protection of, deep sea coral communities. Funding will allow NOAA to identify, understand, and provide information needed to protect deep sea coral habitats, implementing the priority mandates of the *Deep Sea Coral Research and Technology Program*. Activities will include (1) targeted new field research and habitat



characterization activities; (2) development of databases and analyses, management and reporting of existing information; (3) development of management-driven research products; (4) training and workshops with observers, fishermen and the scientific community; and (5) the development and implementation of management actions through prescribed processes such as the Fisheries Management Councils and the system of National Marine Sanctuaries.

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**OTHER ACTIVITIES SUPPORTING FISHERIES****\$78,482,000**

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NOAA requests an increase of \$10,700,000 and 3 FTEs in the Other Activities Supporting Fisheries sub activity, for a total of \$78,482,000 and 8 FTEs. This increase is comprised of three initiatives:

**Aquaculture: NOAA requests an increase of \$2,000,000 and 1 FTE to increase NOAA's aquaculture research capacity at the Northeast Fisheries Science Center's lab in Milford, CT and the Northwest Fisheries Science Center's research station in Manchester, WA.** NMFS will add staff and funding in these two science centers to bolster existing expertise and capacity in commercial marine aquaculture and marine stock enhancement research. The United States cannot meet current seafood demand with its existing seafood supply. With U.S. seafood demand expected to grow by over 2 million metric tons by 2025, the United States must either increase its reliance on imported seafood or increase its domestic seafood production through aquaculture. Increasing domestic marine aquaculture is preferred as it would improve food security, provide domestic jobs, and ensure aquaculture operations operate in a sustainable manner. This increase will allow NOAA's aquaculture research enterprise to effectively assess marine aquaculture permit applications; evaluate environmental impacts of coastal aquaculture; and maintain four new broodstocks for species that show promise for stock enhancement or commercial aquaculture.



*Aquaculture in Maine: Salmon Pen Inspection*

**Climate Regimes and Ecosystem Productivity: NOAA requests an increase of \$2,700,000 and 2 FTEs in the Climate Regimes and Ecosystem Productivity line item.** This increase is comprised of the following two sub-initiatives:

- » **Climate Change Research & Management: NOAA requests an increase of \$1,200,000 and 2 FTEs to support climate change research and management activities by increasing the number of research vessel charter days to adequately cover the expanded area of commercially fished stocks in the Bering Sea.** Bering Sea commercial fisheries account for more than 40 percent of the total U.S. catch, and average summer water temperature there is now 2° to 3°C higher than during the 1990s. Some commercially important species have shifted to areas outside of NOAA's current surveys in the Bering Sea and thus are incompletely monitored. Increased funding will enable NOAA to increase the amount of charter days by 20 additional days. NOAA will assess how changes in the distribution of seasonal sea ice are affecting the distributions of economically important fish and shellfish and ice-dependent marine mammals. This research will enable scientists to distinguish between changes due to commercial fisheries and those due to natural causes. With this information, NOAA's scientific advice to the North Pacific Fisheries Management Council will allow for the continued sustainable management of com-



mercially important fish, shellfish and marine mammal species as climate change influences the productivity of the Bering Sea. Without improved stock assessment capability and reduced uncertainty in stock levels, Bering Sea fish harvests will be reduced, causing a substantial economic impact (e.g., a 10% reduction in pollock harvest would result in an \$80 million loss to the U.S. economy).

- » **Effects of Ocean Acidification: NOAA requests an increase of \$1,500,000 and 0 FTEs to assess the effects of ocean acidification on commercial and recreational marine fish stocks and other living marine resources.** NMFS will begin implementing an integrated Ocean Acidification (OA) initiative to provide understanding, monitoring, and forecasting on how OA is currently and will continue to affect the Nation's ecosystems and associated living marine resources. This request will provide support for intensive field and laboratory research into the physiological response of the nation's living marine resources to OA. This effort will provide critical knowledge to help quantify the impacts OA will have on marine ecosystems and associated living resources. NOAA will conduct a coordinated effort to conduct biological surveys to provide the observations necessary to assess the biological response to increasing acidity of the oceans. The data collected will also be used in integrated ecosystem assessment models to better forecast the biological and socioeconomic impact of OA now and in the future.

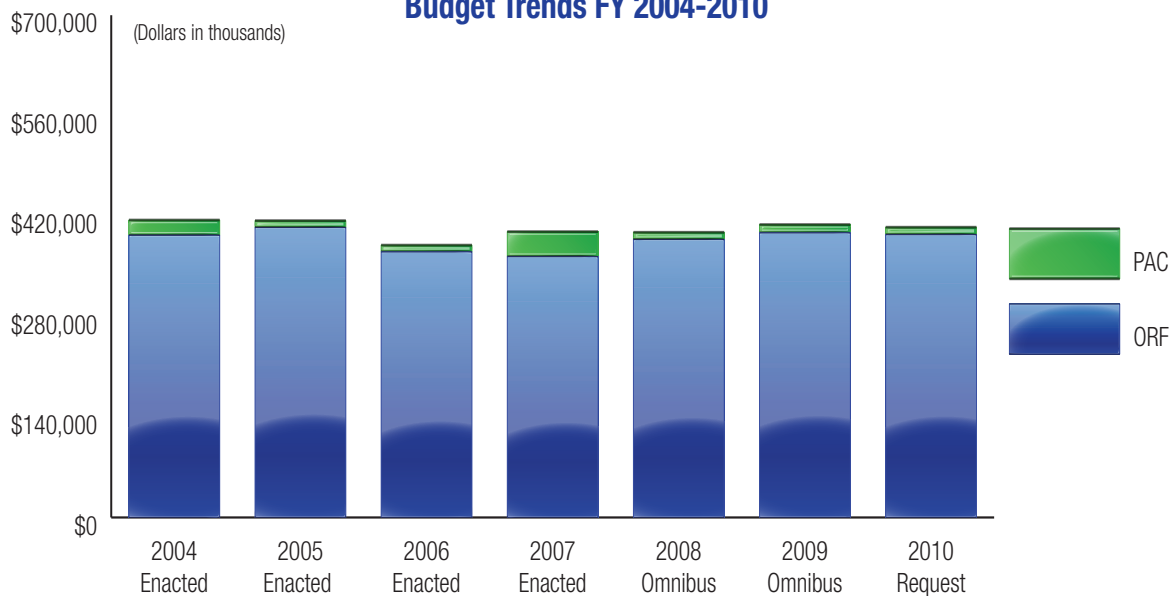
**Cooperative Research: NOAA requests an increase of \$6,000,000 and 0 FTEs to expand cooperative research and management program.** Cooperative research provides a means for commercial and recreational fishermen to become involved in the collection of fundamental fisheries information. This involvement provides a means for stakeholders and fishermen to trust NOAA science and leads to well-informed fishing communities that are more supportive of management actions. NMFS will provide funds on a competitive basis to address needs identified by the Councils in consultation with the Secretary and fisheries managers. This request is a crucial part of the agency's response to recommendations made in the March 2009 OIG report calling for more targeted cooperative research with the Northeast groundfish industry.

### **The Reauthorized Magnuson-Stevens Fishery Conservation and Magnuson Act (MSRA)**

NOAA requests an increase of \$56,542,000 and 0 FTEs for a total of \$98,342,000 for activities supporting the mandates of the reauthorized Magnuson-Stevens Fishery Conservation and Management Act (MSRA) of 2006. The new requirements under MSRA to end overfishing in federal waters include improving fisheries management and data collection procedures, employing market-based approaches to management, addressing issues in management of International fisheries, and expanding the use of ecosystem-based approaches to management. The major components of this initiative are: (1.) Fisheries Research and Management Programs: Annual Catch Limits (ACLs) and Accountability Measures; (2.) Fisheries Statistics: Recreational and Commercial Fisheries Information; (3.) Fisheries Research and Management Programs: Illegal, Unregulated, and Unreported (IUU) Fishing; (4.) Expand Annual Stock Assessments; (6.) Enforcement: ACLs and IUU Fishing; (7.) Sustainable Habitat Management: Deep Sea Coral Research and Technology Program; (8.) Cooperative Research; (9.) Economics and Social Science Research.

**OFFICE OF OCEANIC & ATMOSPHERIC RESEARCH**

(DOLLARS IN THOUSANDS)	FY 2008 OMNIBUS	FY 2009 OMNIBUS	FY 2010 REQUEST	INCREASE (DECREASE)
OAR — ORF				
Climate Research	\$192,812	\$196,536	\$209,840	\$13,304
Weather and Air Quality Research	52,070	63,411	63,922	511
Ocean, Coastal, and Great Lakes Research	130,401	122,759	107,362	(15,397)
Information Technology, R&D & Science Education	12,659	14,028	13,081	(947)
<b>Total, OAR - ORF</b>	<b>387,942</b>	<b>396,734</b>	<b>394,205</b>	<b>(2,529)</b>
Total, OAR - PAC	10,131	11,579	10,379	(1,200)
Total, OAR - Other	0	0	0	0
<b>GRAND TOTAL OAR (Direct Obligations)</b>	<b>\$398,073</b>	<b>\$408,313</b>	<b>\$404,584</b>	<b>(3,729)</b>
<b>Total FTE</b>	<b>625</b>	<b>735</b>	<b>744</b>	<b>9</b>

**OFFICE OF OCEANIC & ATMOSPHERIC RESEARCH**  
**Budget Trends FY 2004-2010**


ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction



## OFFICE OF OCEANIC & ATMOSPHERIC RESEARCH

The primary focus for research and development within NOAA is the Office of Oceanic and Atmospheric Research (OAR), often referred to as NOAA Research. OAR conducts the scientific research, environmental studies, and technology development needed to improve NOAA's operations and broaden our understanding of the Earth's atmospheric and marine environmental systems. OAR currently consists of 7 internal research laboratories and manages or facilitates extramural research at 32 National Sea Grant colleges, universities, and research programs; several undersea research centers; a research grants program through the Climate Program Office; and 13 cooperative institutes with academia.



*Acidification Measuring Buoy*

OAR's activities are organized along four themes: (1) Climate Research; (2) Weather and Air Quality Research; (3) Ocean, Coastal and Great Lakes Research; and (4) Information Technology R&D and Science Education. The goals of these four theme areas are to: (1) understand complex climate systems to improve predictions, (2) Understand atmospheric events to assist in saving lives and property worldwide, (3) Explore, investigate, and understand the complexities of all our coastal, Great Lakes, and ocean habitats and resources and (4) Accelerate adoption of advanced computing, communications, and information technology throughout NOAA and support science education, expanding the pipeline of potential future environmental scientists and researchers for industry, academia, and government. The research is carried out through a national work of more than fifty Federal laboratories and university-based research programs. With this diverse research "tool kit," OAR: provides national and international leadership on critical environmental issues and addresses the environmental R&D needs of internal NOAA customers, states, industry, the Department of Commerce, and other Federal agencies. OAR researchers represent the cutting edge in sustained, long-term environmental observations and modeling; their contributions enhance the health and economic well-being of society.

OAR's FY 2010 request seeks funding to: (1) sustain critical research activities in support of NOAA climate, weather, and ocean missions, (2) initiate new activities that address currently unmet gaps in the NOAA service missions, and (3) meet the information needs of our Nation's environmental decision-makers. The request also responds to recent considerations regarding: (1) Hurricane Forecast Improvement Project, (2) strengthened collaboration



between OAR & NWS, (3) support for “warn on forecast” / improved lead time / new tools, e.g., MPAR (Multi-Function Phased-Array Radar) and (4) preparation for a National Climate Service.

## **FY 2010 BUDGET SUMMARY**

NOAA requests a total of \$394,205,000 and 744 FTEs to support the continued and enhanced operations of OAR. The total includes \$3,109,000 and 0 FTEs for Adjustments to Base (ATB) and a net program change increase of \$22,021,000 and 9 FTEs.

### **ADJUSTMENTS TO BASE**

The above ATB request includes an increase of \$3,109,000 and 0 FTEs to fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

### **OAR – ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2010:**

Program changes are summarized at the sub-activity level below. Detailed numeric breakouts are located in Chapter 5, *Special Exhibits*. Descriptions of each request by line item are located in the NOAA FY 2010 Technical Budget.

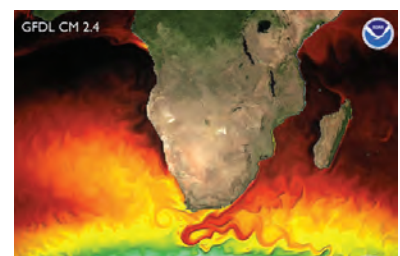
### **CLIMATE RESEARCH**

**\$209,840,000**

NOAA requests an increase of \$15,578,000 and 5 FTEs in the Climate Research sub activity for a total of \$209,840,000 and 359 FTEs.

**Climate Data and Information:** NOAA requests an increase of \$3,751,000 and 0 FTEs. This increase is comprised of two program initiatives:

**National Climate Model Portal:** NOAA requests an increase of \$2,451,000 and 0 FTEs for the development of a National Climate Model Portal (NCMP) to generate and house model based data records and implement an operational archive and access capability for the next generation, high-resolution weather and climate reanalysis datasets. Decision makers are increasingly seeking information that will help their communities plan and respond to climate variability and change. This interoperable portal will provide an operational archive and user access capability for the next generation of climate reanalysis products utilizing major advancements in model physics and coupling across the ocean, air and land interfaces. Reanalysis output and products will improve our understanding of various climate phenomena, including verification, detection, and determination of drought severity and location; verification and improvements to forecasts of El Niño occurrence and persistence; and verification and improvements to our understanding of the hydrologic cycle and water resources. The NCMP will leverage existing supercomputer resources to provide a unified and consistent suite of climate information to users at all levels so that they can make better decisions about their specific management needs. Information will be provided on time scales from days (weather), to months (El Niño), to years and decades (climate variability and change).



*Climate Model: Sea Surface Temperature*



*Climate Reference Network: Baker, NV*

**U.S. Climate Reference work (USCRN): NOAA requests an increase of \$1,300,000 and 0 FTEs to deploy U.S. Climate Reference work (USCRN) benchmark observing stations at 29 locations in Alaska, which will complete the network, to better document, monitor, and assess climate variability and change.** Climate change impacts in Alaska, including accelerated melting of Alaskan coastal frozen sea cliffs (permafrost) and erosion, inland permafrost melting, soil fluctuation and thermokarst heaving are estimated to cost between \$3.6 billion and \$6.1 billion in additional infrastructure costs between now and 2030 as a result of damage to Alaskan roads, highways, buildings, airports, pipelines, and harbor facilities. USCRN in Alaska will provide high quality observations to improve our understanding of climate variability and change in Alaska, a region observed to be impacted by climate change early and to a greater degree than other regional locations, and where it is projected to have the largest changes in climate over the next 25-50 years. The requested funding will be used to purchase hardware and install over a five-year period 29 USCRN observing stations across the state of Alaska. The USCRN sites will increase the value and utility of other more spatially comprehensive observing works, including satellites, *in-situ*, and remote based observing systems, and it will enhance the ability of policy makers and resource managers to make informed regional, national and global policy decisions.

**Competitive Research Program:** NOAA requests an increase of \$11,831,000 and 5 FTEs. This increase is comprised of three program initiatives:

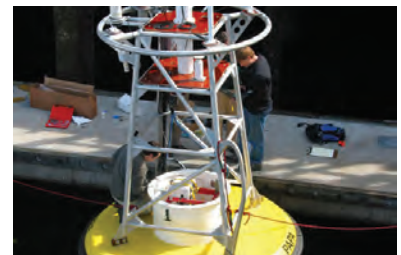
**National Integrated Drought Information System (NIDIS): NOAA requests a net increase of \$4,550,000 and 1 FTE to: 1) implement three early warning system development projects; and 2) develop and implement the next generation Climate Forecast System, which will lead to improved NOAA climate forecast products.**

The U.S. is currently experiencing drought: the Southwest has experienced ongoing drought since 1999; the Great Lakes are experiencing declining water levels; and in the last year, the U.S. had the most severe drought in a century in the Southeastern U.S. The Federal Emergency Management Agency estimates the annual direct losses to the U.S. due to drought are \$6-8 billion, the highest average annual cost of any natural disaster. Stakeholders impacted by drought have repeatedly communicated that drought products currently available, including forecasts, have limited utility for their decision making. NIDIS will address this need through the development of early warning system pilot projects in different water, energy, agricultural, ecosystem management and drought conditions at different geographical resolutions. The three early warning system pilot project areas are: the Colorado River Basin (\$1.0M), the Southeastern U.S. (\$825K), and California (\$725K). These diverse pilot areas will provide a foundation for the NIDIS Drought Early Warning Information System capable of providing accurate, timely, and integrated information on drought conditions at the relevant spatial scale. The pilots will focus on information needs for impact mitigation and improving predictive capabilities for early warning. In addition, NOAA will improve its climate forecasts (\$2,000K) related to drought and increase the scope and applicability of those forecasts for the drought user community. Both the early warning system pilot projects and improved forecasts are keys to developing drought related triggers for informing management and stakeholders and will lead to the development of the first NIDIS drought early warning information systems, a direct implementation requirement of the NIDIS Act of 2006.



**Decadal Climate Predictions:** NOAA requests an increase of \$2,600,000 and 4 FTEs to develop the capability to make ongoing decadal climate predictions including sea-level projections, Arctic forecasts, and early warnings of climate ‘surprises’ resulting from natural climate variations on decadal timescales. There is an urgent need to be able to provide predictions and projections that answer questions such as: Will the enhanced hurricane activity in the Atlantic continue over the next decade? Will drought conditions in the U.S. southwest continue? Will observed changes in the Arctic accelerate or moderate over the next decade? What is the potential for rapid changes in land-based ice sheets and further acceleration in the rate of sea level rise? NOAA needs to develop climate prediction systems that use the observed state of the climate system to make predictions of how the system will evolve over the next decade. To do this, NOAA will develop: 1) a new data assimilation system to provide initial conditions for climate model; 2) enhanced models including, a coupled climate model with a high-resolution ocean component; and 3) a program to support modeling glaciers and high-resolution climate/carbon/ice/ snow models. This suite of activities will allow NOAA to conduct and evaluate prototype decadal-scale predictions of the climate system and provide a prototype warning system for abrupt climate change events.

**Ocean Acidification Monitoring:** NOAA requests an increase of \$4,000,000 and 0 FTEs to implement long-term monitoring of ocean acidification for assessing climate change impacts on living marine resources. Magnuson-Stevens Reauthorization Act of 2006 requires that climate impacts be considered in living marine resource management decisions. NOAA has made it a high priority to understand climate-ecosystem interactions, particularly ocean acidification impacts on biological productivity and distribution. A sustained monitoring capability is required to underpin these efforts. NOAA will expand the in situ observations of sea surface carbonate chemistry not only in the Pacific, but also in the Atlantic basin, which is currently under sampled. NOAA will equip 13 open-ocean and 7 coastal moorings with additional sensors to monitor the changes in the pH of the global ocean resulting from the uptake of anthropogenic emissions, in particular CO<sub>2</sub>. This component of the Global Ocean Observing System will result in an improved ability to quantify and predict changes in coastal and global ocean dissolved CO<sub>2</sub> and pH, and to predict the future ecological, climate and socio-economic consequences of ocean acidification.



Ocean Acidification Buoy

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**WEATHER & AIR QUALITY RESEARCH**
**\$63,922,000**

NOAA requests an increase of \$5,592,000 and 4 FTEs in the Weather and Air Quality Research sub activity for a total of \$63,922,000 and 209 FTEs.

**Laboratories and Cooperative Institutes:** NOAA requests an increase of \$4,592,000 and 2 FTEs. This increase is comprised of two program initiatives:

**Weather Research & Forecasting (WRF) Developmental Testbed Center (DTC):** NOAA requests an increase of \$2,000,000 and 1 FTE to continue to build the Weather Research and Forecasting (WRF) Developmental Testbed Center (DTC) as the principal vehicle for leveraging the modeling capabilities for Federal, academic, and private numerical modelers. The increased funding will allow the DTC to provide advanced hurricane and numerical ensemble prediction systems to the research community



for further advancement and refinement, initially including a Hurricane version of the WRF model (HWRF), advanced data assimilation techniques, and the capability to supply a basic verification toolkit for the centrally managed computer coding and software. The funds will also cover: (1) Documentation for developed modeling and evaluation systems and components (2) Enhanced support to the user community through the development of a HWRF tutorial (including ocean and wave modeling). NOAA research laboratories and their cooperative institutes expect to conduct this work in partnership with the National Center for Atmospheric Research (sponsored by the National Science Foundation) and the Department of Defense. The DTC is located in Boulder, CO, where the operational and research communities work closely together in developing and testing the next generation numerical forecast systems.

**Severe Weather Forecast Improvements: NOAA requests a net increase of \$2,592,000 and 1 FTE to perform research and development activities to enable forecast offices to issue tornado warnings with a 30-minute lead time or greater.**

Research that contributes to increases in tornado and severe-weather lead time has the potential to save lives and mitigate property damage. Impacts from severe storms in the US cost hundreds of millions of dollars as well as 150 to 250 lives per year. On average, flash floods created by severe storms kill over 130 people per year, while tornadoes kill more than 50 people per year. Additionally, this increase in research funding is responsive to the National Research Council report *Completing the Forecast*, in which the National Academies of Sciences recommends new products that convey the certainty of severe weather forecasts, allowing users to take appropriate risk mitigation actions. Today's National Weather Service (NWS) tornado warning lead times are typically 10 to 15 minutes and are based principally on radar observations. The ability to provide tornado warnings and other severe thunderstorm hazardous weather based on forecast models (in addition to observations) is referred to as "Warn on Forecast" (WoF). While the focus is on tornado-warning lead-time services, this increase in funding will also lead to improved forecasts of hail, straight-line winds, and heavy rain (flash floods). The WoF effort has three integrated components: First, to improve the understanding of the small-scale (microphysical) processes occurring within thunderstorms; second, to improve existing high-resolution forecast models; and lastly, to take advantage of incremental improvements that will be useful in NWS forecast operations by testing them first in the NOAA Hazardous Weather Testbed (HWT).

**Weather & Air Quality Research Programs:** NOAA requests an increase of \$1,000,000 and 2 FTEs. This increase is comprised of a single program initiative:



Multi-Function Phased Array Radar (MPAR)  
Schematic

**Tornado Severe Storm Research/Multi-Function Phased Array Radar (MPAR):** NOAA requests an increase of \$1,000,000 and 2 FTEs to continue research to demonstrate that MPAR technology can cost effectively replace aging operational weather and aircraft tracking radars. This risk-management work will focus on assessing the radar's ability to meet agency requirements and improve services, reducing technical and program uncertainties, and developing information for future analyses of alternatives. Through the efforts of the Office of the Federal Coordinator for Meteorology (OFCM) Working Group for MPAR and in collaboration with the Federal Aviation Administration (FAA), NOAA's National Severe Storms Laboratory and the FAA, along with university and industrial partners, are adapting a Phased Array Radar (PAR) system for weather observation and aircraft surveillance. This increase will support the risk-reduction activity needed to provide



decision makers with the appropriate information needed for a multi-agency decision on a gross purchase of these radars. By 2020-2025, more than 350 FAA radars and nearly 150 weather radars will need to be either replaced or have their service life extended. If MPAR is successful and implemented as replacement radar, estimated multi-agency savings total \$4.8 billion in acquisition costs (\$1.8 billion if replacing all existing radars with similar technology) and life-cycle costs (\$3.0 billion due to fewer radars) over 30 years.

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**OCEAN, COASTAL, & GREAT LAKES RESEARCH****\$107,362,000**

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NOAA requests an increase of \$851,000 and 0 FTEs in the Ocean, Coastal, and Great Lakes Research sub activity for a total of \$107,362,000 and 163 FTEs.

**Laboratories and Cooperative Institutes:** NOAA requests an increase of \$501,000 and 0 FTEs. This increase is requested as a single program initiative:

**Great Lakes Environmental Research Laboratory Operations: NOAA requests an increase of \$501,000 and 0 FTEs for Great Lakes Environmental Research Laboratory Operations.** This funding will expand and advance key Great Lakes forecasting research programs with identifiable operational products, and specifically to restore the Environmental Chemistry and Toxicology program and to sustain the Laboratory's Aquatic Invasive Species program and its Hydrology program. The requested funds will enable the Laboratory to support such critical research efforts in the Great Lakes and beyond as: assess toxic chemical sources and impacts, forecast harmful algal bloom occurrence and toxicity, determine how contaminated sediments move up the food chain to humans, identify causes and solutions to water-borne diseases, provide lake-level predictions, and prevent ballast-tank transport of invasive species.

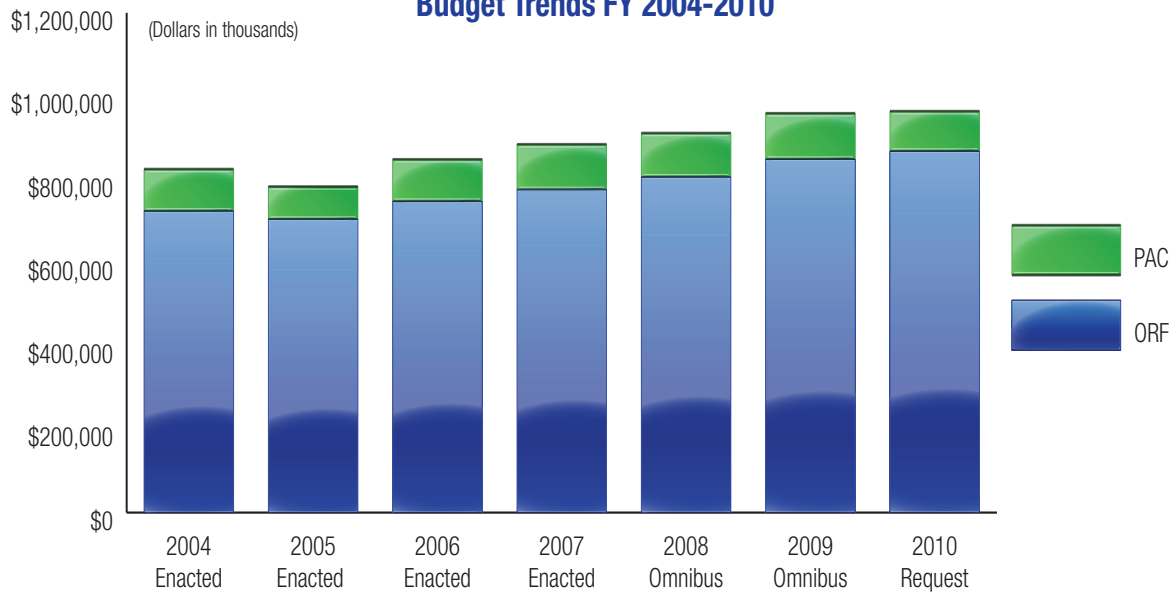


*Great Lakes Environmental Research Laboratory*



**NATIONAL WEATHER SERVICE**

(DOLLARS IN THOUSANDS)	FY 2008 OMNIBUS	FY 2009 OMNIBUS	FY 2010 REQUEST	INCREASE (DECREASE)
NWS — ORF				
Operations and Research	\$711,252	\$749,583	\$764,914	\$15,331
Systems Operation & Maintenance (O&M)	94,042	98,355	102,308	3,953
<b>Total, NWS - ORF</b>	<b>805,294</b>	<b>847,938</b>	<b>867,222</b>	<b>19,284</b>
Total, NWS - PAC	106,112	110,951	96,658	(14,293)
Total, NWS - Other	0	0	0	0
<b>GRAND TOTAL NWS (Direct Obligations)</b>	<b>\$911,406</b>	<b>\$958,889</b>	<b>\$963,880</b>	<b>\$4,991</b>
<b>Total FTE</b>	<b>4,732</b>	<b>4,639</b>	<b>4,644</b>	<b>4</b>

**NATIONAL WEATHER SERVICE**  
**Budget Trends FY 2004-2010**


ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction



# NATIONAL WEATHER SERVICE

The National Weather Service (NWS) is the Nation's first line of defense against severe weather. The NWS provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure that can be used by other government agencies, the private sector, the public, and the global community.



*Shelf Cloud: Great Bend, KS*

The United States is one of the most severe weather prone countries on Earth. Each year, Americans cope with an average of 10,000 thunderstorms, 5,000 floods, 1,000 tornadoes, as well as six hurricanes. Some 90 percent of all Presidentially-declared disasters are weather-related. There are approximately 7,900 weather-related deaths per year and \$14 billion in damage due to weather incidents. Of these 7,900 deaths per year, 7,400 are attributed to weather-related traffic fatalities. According to the American Meteorological Society, weather is directly linked to public safety, and about one-third of the U.S. economy (about \$4 trillion) is weather-sensitive. Vulnerability threat from severe weather is increasing as the Nation's population grows and shifts to coastal areas.

More and more sectors of the U.S. economy recognize the impacts of weather, water, and climate on their businesses and are becoming more sophisticated at using weather, water, and climate information to make better decisions. To meet this growing demand for information and to improve the timeliness and accuracy of warnings for all weather-related hazards, the NWS will continue to enhance observing capabilities; improve data assimilation to effectively use all the relevant data NWS and others collect; improve collaboration with the research community; make NWS information available quickly, efficiently, and in a useful form (e.g., the National Digital Forecast Database); and include information on forecast uncertainty to help customers make fully informed decisions. A key focus for the NWS is to improve decision support for high impact weather events.



With about 4,800 employees in 122 weather forecast offices, 13 river forecast centers, 9 national centers, and other support offices around the country, NWS provides a national infrastructure to gather and process data worldwide from the land, sea, and air. This infrastructure enables data collection using technologies such as Doppler weather radars; satellites operated by NOAA's National Environmental Satellite, Data, and Information Service (NESDIS); data buoys for marine observations; surface observing systems; and instruments for monitoring space weather and air quality. These data feed sophisticated environmental prediction models running on high-speed supercomputers. Our highly trained and skilled workforce uses powerful workstations to analyze all of these data to issue climate, public, aviation, marine, fire weather, air quality, space weather, river and flood forecasts and warnings around-the-clock. A high-speed communications hub allows for the efficient exchange of these data and products between NWS components, partners and customers. NWS forecasts and warnings are rapidly distributed via a diverse dissemination infrastructure including NOAA Weather Radio. Finally, customer outreach, education, and feedback are critical elements to effective public response and improvements to NWS services.

The FY 2010 President's Budget Request supports the funding and program requirements necessary to address established NOAA strategic goals and continues NWS on the path to achieve its vision to: produce and deliver forecasts that can be trusted, use cutting-edge technologies, provide services in a cost-effective manner, strive to reduce weather-related fatalities, and improve the economic value of weather, water, and climate information.

## **FY 2010 BUDGET SUMMARY**

NOAA requests a total of \$867,222,000 and 4,613 FTEs to support the continued and enhanced operations of the National Weather Service. This total includes \$16,525,000 and 0 FTEs for Adjustments to Base (ATB), and a net program change of \$22,578,000, and 5 FTEs.

### **ADJUSTMENTS TO BASE:**

The above ATB request includes an increase of \$16,525,000 and 0 FTEs to fund the requested FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

### **NWS – ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2010:**

Program changes are summarized at the sub-activity level below. Detailed numeric breakouts are located in Chapter 5, *Special Exhibits*. Descriptions of each request by line item are located in the NOAA FY 2010 Technical Budget.

#### **OPERATIONS AND RESEARCH**

**\$764,914,000**

NOAA requests an increase of \$18,810,000 and 5 FTEs in the Operations and Research sub activity, for a total of \$764,914,000 and 4,425 FTEs.

**Local Warnings and Forecasts:** NOAA requests an increase of \$8,810,000 and 4 FTEs for local warnings and forecasts. This increase is comprised of two initiatives:



**Local Warnings and Forecasts: NOAA requests an increase of \$2,700,000 and 0 FTEs to transition space weather warnings and services numerical models into Operations in order to accommodate the new critical needs of our rapidly growing customer base.** Industries; other agencies including DOD, NASA, and DHS; state and local governments; and the public increasingly rely on advanced technologies to provide global business products and services and to safeguard national security. These technologies are vulnerable to the threats of space weather. Millions of precision Global Positioning System users, satellite operators, and the majority of commercial and military space and aviation activities will be vulnerable to a new round of solar storms during the upcoming solar maximum (peaking in 2012) unless NOAA develops the critical prediction and warning tools to safeguard these efforts. Current NOAA services provide forecast and nowcast information, but timeliness, accuracy, and coverage of existing products and services fall short in meeting the critical needs identified by our fast-growing and diverse customer base.

**Aviation Weather: NOAA requests an increase of \$6,110,000 and 4 FTEs to expand this multi-year effort to improve services and support the multi-agency Next Generation Air Transportation System (NextGen).** This requested increase will lay the foundation and accelerate the development of the NOAA-led effort to field the weather information data base (WIDB), known as the 4-dimensional weather data cube (4D Cube), as required by the NextGen Integrated Work Plan. This WIDB will integrate observed and forecast weather information into an automated, multi-agency coordinated, air traffic management system. In its May 2008 report on the cost of flight delays to passengers, the airline industry and the economy, the Congressional Joint Economic Committee quantified the total cost of air traffic delays for 2007 at \$41 billion. Roughly \$29 billion of this cost can be attributed to weather effects. Federal Aviation Administration (FAA) records indicate that on average, weather is a factor in 70% of delays. The FAA estimates that two-thirds of these delays can be avoided with enhanced weather information. These delay costs will only increase as demand for air transportation continues to grow, nearly tripling by 2025. The National Airspace System (NAS) will be saturated and unable to accommodate the increased demands by 2015. The Joint Planning and Development Office (JPDO) has developed a NextGen plan for accommodating the expected growth in demand. A critical component of the NextGen plan is a weather forecast process, with meteorologist intervention, that generates rapidly-updated, high-resolution probabilistic weather information which is consistent across space and time. This Single Authoritative Source (4-D Weather SAS) of weather information will be stored in a WIDB where it can be accessed by all NAS users. This capability does not presently exist within the federal government, and the JPDO partner agencies are depending on NOAA, as the federal weather information experts, to deliver it.

**Central Forecast Guidance:** NOAA requests an increase of \$10,000,000 and 1 FTE. This is comprised of one initiative:

**Hurricane Forecast System Improvements: NOAA requests an increase of \$10,000,000 and 1 FTE to significantly accelerate the improvement of hurricane track and intensity forecasts.** This request would carry forward the FY2009 supplemental funding to Accelerate Hurricane Forecasting System Improvements. The goal of the hurricane forecast improvement project is to improve hurricane track and intensity forecast accuracy by 20% within 5 years, provide for objective forecast probability guidance and



substantially improve the capability to forecast the associated storm surge. NOAA's overall strategy to improve hurricane forecasts and warnings includes increasing the research capacity and improving the observation and scientific understanding of hurricanes. NOAA will use this to accelerate the applied research and engineering development of a greatly improved higher resolution national Global Ensemble Forecast System (GEFS) and higher resolution Hurricane Forecast System (NHFS); and to transition these new and improved capabilities into operations to provide operational model track, intensity and storm surge forecast guidance to the National Hurricane Center (NHC) for their use in providing operational forecasts and warnings.

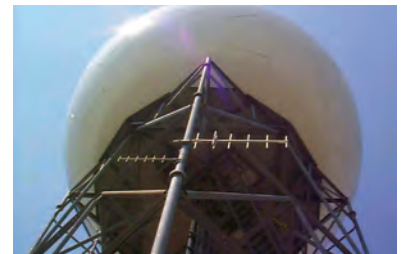
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**SYSTEMS, OPERATIONS & MAINTENANCE (O&M)****\$102,308,000**

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NOAA requests an increase of \$3,768,000 and 0 FTEs. This increase is comprised of three initiatives:

**NEXRAD Operations & Maintenance: NOAA requests an increase of \$1,029,000 and 0 FTEs to operate and maintain hardware and software which generates weather products from each of the 45 FAA Terminal Doppler Weather Radars (TDWRs).** The NEXRAD Product Improvement program has invested \$725,000 to develop and implement the necessary infrastructure to deliver TDWR data to Weather Forecast Offices. However, there is a recurring cost component for this capability which cannot be supported under the existing O&M budget. NWS completed deployment of the required infrastructure by the end of FY 2008 and now requires funding for FY 2009 and beyond for continued operations and maintenance. The potential value to NWS operations was highlighted in several recent reports. In March 2004, when a fast-moving thunderstorm resulted in high winds over the Baltimore Harbor, a water taxi capsized and lives were lost. The service assessment report for this event noted that TDWR radar data better depicted the change in wind speed and direction because of its location relative to the storm. Had this data been integrated into the forecasters' primary workstations, they may have been able to better warn the citizens in the inner harbor area. In addition, the DOC Inspector General determined, after review of the Rogers, MN tornado event in 2006, that the FAA TDWR radar indicated tornadic conditions sooner than the NEXRAD work, most likely due to the position and timing.



*NEXRAD: Pittsburgh, PA*

**ASOS Operations & Maintenance: NOAA requests an increase of \$1,500,000 and 0 FTEs to establish an on-going sustaining engineering/technology refresh capability within the joint NWS/FAA ASOS O&M program.** This initiative will ensure the continued operation of this critical system which supports the meteorological requirements of the NWS, FAA, and Department of Defense (DOD). The request will bring the system into compliance with Federal, DOC, NOAA, and NWS Information Technology (IT) security policies and procedures to avoid future costly wholesale replacement and preserve the \$170,000,000 investment in ASOS production and product improvement. Two critical ASOS IT subsystems require technology refresh. The Acquisition Control Unit (ACU) and Data Collection Package (DCP) subsystems were designed in the 1980s and are becoming increasingly obsolete, logistically unsupportable, and unable to support new or changing



*Winnemucca, NV Airport Automated Surface Observing System (ASOS)*



system and service requirements. Technology refresh of the ACU and DCP subsystems is required to ensure ASOS is able to support NWS weather forecast activities, FAA aviation operations, and the needs of the meteorological, hydrological, and climatological research communities.

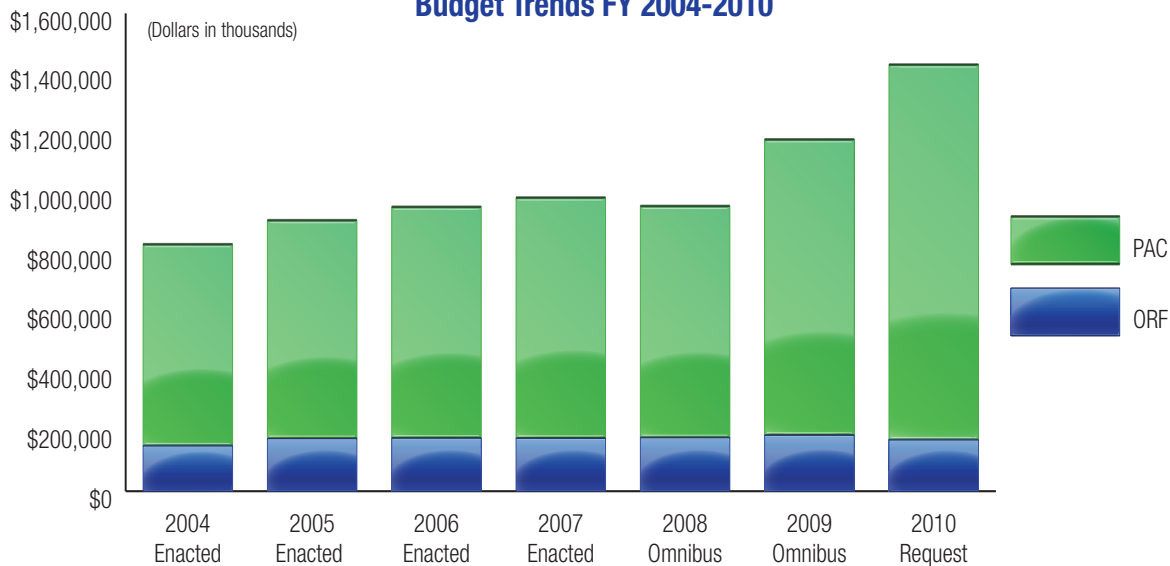
**AWIPS Operations & Maintenance: NOAA requests an increase of \$1,239,000 and 0 FTEs to provide needed telecommunications backup capabilities; increase AWIPS system capacity to accommodate increased data demands imposed on the system by external programs, including the National Polar-orbiting Environmental Satellite System (NPOESS), the Geostationary Operational Environmental Satellites-Series R (GOES-R), dual-polarization radar, and numerical model enhancements; and operate and maintain critical centralized AWIPS support systems.** AWIPS is vulnerable to service interruption and downtime due to its reliance on terrestrial telecommunication services. This was evident following Hurricane Katrina, where the destruction of commercial terrestrial telecommunications infrastructure along the Gulf Coast prevented NWS Weather Forecast Offices from providing forecast and warning services via AWIPS even though the offices were staffed and operating under backup power. The Post-Katrina Service Assessment Report recommended NWS supplement its terrestrial telecommunications with satellite based back-up. The AWIPS NOAAPort satellite broadcast work is the vehicle by which satellite and other observational data are transmitted to NWS field forecasters. Today, AWIPS NOAAPort does not have the necessary capacity to transmit new data sets associated with planned NOAA investments in NPOESS and GOES-R instruments, numerical weather prediction model upgrades, and higher resolution dual polarized radar data. In order to fully support NPOESS and GOES-R data, an additional SBN upgrade will be needed; the current SBN bandwidth allocated to satellite data is about 9 Mbps and NPOESS and GOES-R will produce a total of about 90 Mbps of data. The activities funded by this budget initiative will (1) provide a Wide Area work (WAN) backup capability to address the Post-Katrina Service Assessment Report recommendations, (2) initiate enhancement of the Satellite Broadcast work (SBN) to add bandwidth for NPOESS and GOES-R data, and (3) provide O&M support for several centralized subsystems that were developed and deployed using one year development funds.



## NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

(DOLLARS IN THOUSANDS)	FY 2008 OMNIBUS	FY 2009 OMNIBUS	FY 2010 REQUEST	INCREASE (DECREASE)
NESDIS — ORF				
Environmental Satellite Observing Systems	\$101,919	\$107,896	\$110,490	\$2,594
NOAA's Data Centers & Information Services	77,235	79,526	61,247	(18,279)
<b>Total, NESDIS - ORF</b>	<b>179,154</b>	<b>187,422</b>	<b>171,737</b>	<b>(15,685)</b>
Total, NESDIS - PAC	775,922	990,579	1,256,857	266,278
Total, NESDIS - Other	0	0	0	0
<b>GRAND TOTAL NESDIS (Direct Obligations)</b>	<b>\$955,076</b>	<b>\$1,178,001</b>	<b>\$1,428,594</b>	<b>\$250,593</b>
<b>Total FTE</b>	<b>776</b>	<b>831</b>	<b>831</b>	<b>0</b>

### NATIONAL ENVIRONMENTAL SATELLITE, DATA, & INFORMATION SERVICE Budget Trends FY 2004-2010



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction



# NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

The NOAA National Environmental Satellite, Data, and Information Service (NESDIS) provides timely access to global environmental data from satellites and other sources to promote, protect, and enhance the Nation's economy, security, environment, and quality of life. To do so, NESDIS acquires and manages the Nation's civil operational environmental satellites, provides data and information services, and conducts related research. Additionally, NESDIS manages the NOAA environmental data collections and disseminates data and information to meet the user needs in commerce, industry, agriculture, science, and engineering, as well as federal, state, and local governments.



*NOAA N Prime Before Launch*

To fulfill its responsibilities, NESDIS meets the Nation's requirement of an environmental satellite system capable of providing timely and accurate environmental data. Early warnings of major weather events help save countless lives and help prevent substantial property damage. NESDIS' satellite command and control acquire data from on-orbit satellites 24 hours per day, 365 days per year. This includes monitoring the day-to-day operations at the NOAA Satellite Operations Control Center in Suitland, Maryland, and satellite command and data acquisition stations in Wallops, Virginia and Fairbanks, Alaska. From these ground stations, NOAA operates and acquires data from Polar-orbiting Operational Environmental Satellites (POES), Geostationary Operational Environmental Satellites (GOES), Department of Defense (DOD) Meteorological Satellite Program (DMSP), and Jason-2.

NESDIS provides the Nation with specialized expertise and computing systems that process, analyze, and distribute satellite-derived products and services using data from NOAA, DOD, and NASA environmental satellites, as well as foreign and commercial spacecraft. These products and services are provided to national and international users 24 hours per day, 7 days per week. This enables NOAA to accurately track the location, extent and duration of severe weather, such as hurricanes, tornadoes, and winter storms; support development of flash flood warnings; track volcanic ash clouds and severe winds that threaten aviation safety; detect remote wild land fires; monitor coastal ecosystem health; identify and monitor maritime hazards from sea ice; and assist in search and rescue activities.



As an important part of this support, NESDIS works to transition research satellite capabilities to operational products and services. NESDIS also provides the Nation with a long-term archive of past, present, and future environmental observations and associated data recorded across the United States and globally. Through its three (3) National Data Centers, environmental data, information, products, and services are provided to support atmospheric, oceanographic, and the solid earth and solar-terrestrial physical sciences and promote sustained economic growth, scientifically sound environmental management, and public safety.

NESDIS delivers critical solutions for the protection of human life, property, and critical infrastructure through its satellites, products and services. NESDIS also supports the President's priorities in climate sciences, ocean and coastal management, integrated earth observations, energy, and forest resources protection through various product developments.

## FY 2010 BUDGET SUMMARY

NOAA requests a total of \$171,737,000 and 678 FTEs to support the continued and enhanced operations of NESDIS. This total includes \$2,449,000 and 0 FTEs for Adjustments to Base (ATB), and a net program change of \$7,880,000 and 0 FTEs.

### ADJUSTMENTS TO BASE:

The above ATB request includes an increase of \$2,449,000 and 0 FTEs to fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

### NESDIS – ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2010:

Program changes are summarized at the sub-activity level below. Detailed numeric breakouts are located in Chapter 5, *Special Exhibits*. Descriptions of each request by line item are located in the NOAA FY 2010 Technical Budget.

#### ENVIRONMENTAL SATELLITE OBSERVING SYSTEMS

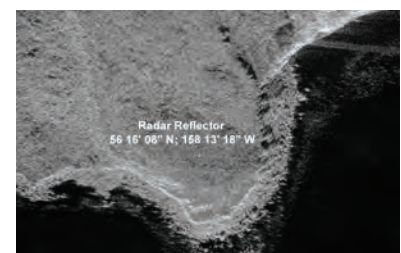
**\$110,490,000**

NOAA requests an increase of \$110,490,000 and 409 FTEs in the Environmental Satellite Observing Systems sub activity.

**Product Processing and Distribution:** NOAA requests an increase of \$880,000 and 0 FTEs. This increase is composed of one initiative:

**National Ice Center (NIC) Sea Ice Data Buy: NOAA requests an increase of \$880,000 and 0 FTEs for the National Ice Center (NIC) Sea Ice Data Buy.**

This increase will purchase Synthetic Aperture Radar (SAR) imagery scenes from commercial remote sensing data providers to create operational products to identify safe routes through ice covered waters. SAR data are critical to producing ice products because of its all-weather, cloud-discerning capability. Arctic and cold regions are cloud covered 75-80% of a typical winter season, especially over icy waters. SAR data provides the 100-meter resolution required for large areas which cannot be met with any other data sets. The procurement of SAR imagery will help



0.6 meter reflector in a 1 meter resolution SAR image



to mitigate the loss of free data from RADARSAT-1, which is no longer available to NOAA. The National Ice Center (NIC) operates under a Memorandum of Agreement with the U.S. Coast Guard, U.S. Navy, and NOAA. The NIC provides sea ice nowcast and forecast products to support marine transportation in northern U.S. and adjacent international ocean waters that are subject to ice cover. These products are also used by vessels to plan efficient shipments of commerce through small areas such as ports, harbors, bays, rivers and channels or specific locations where industrial or other commercial activity is ongoing. More than 3,000 ships per year pass through Alaska's Aleutian Islands while traveling between North America and Asia via the "Great Circle Route." Safe and efficient travel through such remote and environmentally sensitive areas is dependent upon National Ice Center forecasts and NOAA charts of these waters.

#### DATA CENTERS AND INFORMATION SERVICES

**\$61,247,000**

NOAA requests a total of \$61,247,000 and 269 FTEs in the Data Center and Information Services sub activity. The FY 2010 President's Budget requests funding to provide archive of, and access to, environmental observations and products.

**Archive, Access, and Assessment (AAA):** NOAA requests an increase of \$7,000,000 and 0 FTEs to provide archive of, and access to, environmental observations and products. This increase is comprised of one initiative:

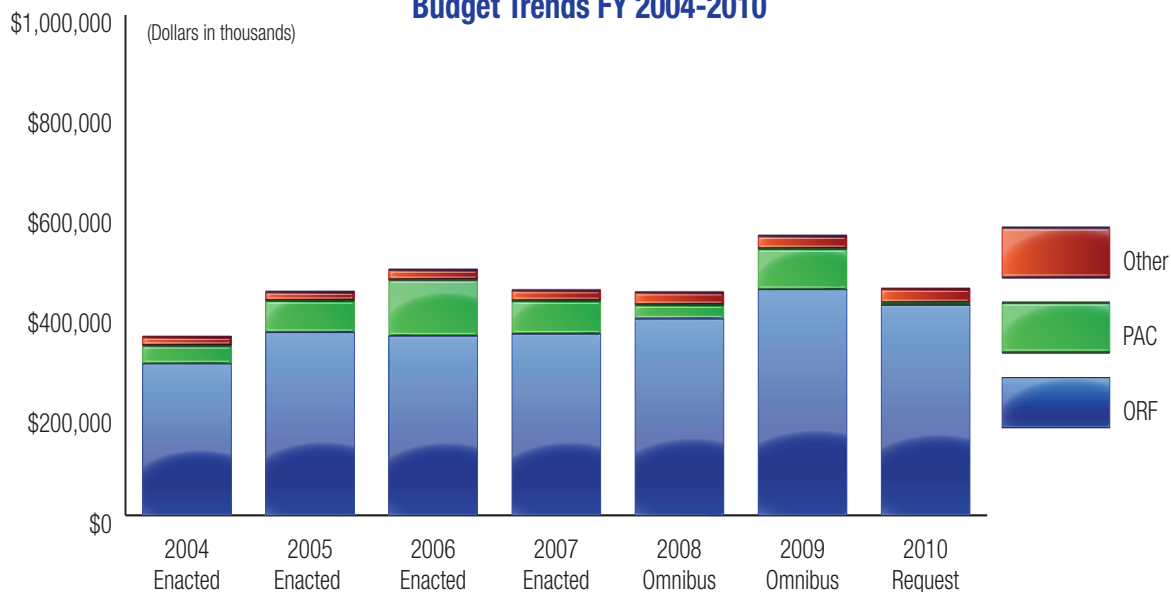
**Climate Data Records: NOAA requests an increase of \$7,000,000 and 0 FTEs to transform raw satellite data into unified and coherent long-term environmental observations and products that are critical to advance climate change understanding, prediction, mitigation and adaptation.** Climate Data Records (CDRs) are distinct from operational weather/hazard satellite products since they remove or minimize time dependent biases in satellite data and provide long term "seamless" records characterizing climate change and variation (50+ years). The Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report (2007) underscores the urgent need for CDRs. Key NOAA constituents, including major private sector industries, such as insurance, energy, and transportation, have increasingly called for authoritative climate reference data upon which to base investments and strategic plans.

NOAA's CDR efforts are initially focused on critical CDRs that address key societal issues including: water, drought, and floods; energy and renewable energy; and hurricanes and coastal hazards. Improved knowledge in these areas translates into lives and property protected or saved, as well as economic resiliency and national security. This increase will provide Phase 1 production of Climate Data Records (CDRs) and Climate Information Records (CIRs). CDRs and CIRs provide authoritative climate reference sets, which are required by scientists to detect, assess, model and predict climate change, and by decision-makers to devise strategies to respond, adapt, and mitigate the effects of climate change.

**PROGRAM SUPPORT**

(DOLLARS IN THOUSANDS)	FY 2008 OMNIBUS	FY 2009 OMNIBUS	FY 2010 REQUEST	INCREASE (DECREASE)
PS — ORF				
Corporate Services	\$187,983	\$205,809	\$204,493	(\$1,316)
NOAA Education Program	34,057	46,114	20,653	(25,461)
Facilities	18,501	21,000	30,346	9,346
Office of Marine & Aviation Operations	151,841	178,055	164,168	(13,887)
<b>Total Program Support - ORF</b>	<b>392,382</b>	<b>450,978</b>	<b>419,660</b>	<b>(31,318)</b>
Total, PS - PAC	28,422	81,750	5,000	(76,750)
Total, PS - Other	24,921	25,946	28,050	2,104
<b>GRAND TOTAL PS (Direct Obligations)</b>	<b>\$445,725</b>	<b>\$558,674</b>	<b>\$452,710</b>	<b>(\$105,964)</b>
<b>Total FTE</b>	<b>1,858</b>	<b>2,019</b>	<b>2,053</b>	<b>34</b>

**PROGRAM SUPPORT**  
**Budget Trends FY 2004-2010**



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

Other: NOAA Corps Commissioned Officers Retirement (Mandatory) and Medicare Eligible Retiree Healthcare (Discretionary)



## PROGRAM SUPPORT

Program Support consists of Corporate Services, the NOAA Education Program, Facilities, and the Office of Marine and Aviation Operations (OMAO). NOAA Program Support provides the planning, administrative, financial, and infrastructure services that are essential to the successful performance of NOAA's mission. In addition to NOAA-wide corporate services and agency management, Program Support activities specifically support the people and programs of NOAA, ensuring that they have the proper work environment, the necessary tools and equipment, and the vital personnel and finance services which, in turn, allow them to provide the finest possible service to the American people, our economy and our environment. Through OMAO, Program Support provides data collection at sea and in the air to support NOAA program requirements.



*NOAA Ship Miller Freeman with Fisheries Oceanography Coordinated Investigations (FOCI) buoy*

### FACILITIES

The NOAA Chief Administrative Officer (CAO), through the Facilities Management and Modernization Program, provides program direction and oversight to NOAA's major construction program and has been the focal point for facility master planning, project planning formulation and development, and project management oversight to support critical NOAA mission requirements. This program supports an integrated capital investment planning process, integrated facility condition inspection program, systems and technology tools to enable maximum efficiency in project and facility management planning, and investments required to support repair and modernization of NOAA' facilities.

NOAA owns more than 400 buildings, in addition to piers and other structures, which are valued at over \$2 billion. These facilities are aging, with more than 30 facilities over 60 years old. NOAA's facilities are often subject to the extremes of weather and climate conditions, and are, therefore, more prone to unplanned repairs. This program provides funding to conduct facility condition inspections and supports investments in necessary facility repairs and modernization needed to ensure that the facilities remain safe, effective, and efficient in support of NOAA's programs. It also supports operations at NOAA's state-of-the-art laboratory building in Boulder, Colorado. This facility houses staff and programs from three NOAA line organizations (OAR, NES-



DIS, and NWS) as well as NOAA's program support units for the region, and supports NOAA's climate and weather research.

The CAO organization is responsible for managing the total project life cycle for facility construction and modernization projects, including environmental and safety projects.

## OFFICE OF MARINE AND AVIATION OPERATIONS (OMAO)

### Marine Operations

OMAO operates NOAA's fleet of vessels and provides ship support to NOAA programs through outsourcing, operational readiness, and maximum platform utilization in support of NOAA's at-sea data collection requirements. OMAO provides centralized management for operations, fleet planning, and maintenance support and is responsible for NOAA's fleet safety and diving programs. Other mission responsibilities include training and certifying NOAA Corps Officers, crews, and scientists for at-sea duty. OMAO also contributes funding and platform operation support to NOAA's Teacher-at-Sea program.

NOAA's vessels support nautical charting, fisheries research, marine environmental assessments, coastal-ocean circulation studies, and oceanographic and atmospheric research, and operate on both the East and West Coasts. The 20 active ships will perform approximately 3,390 operating days in FY 2010 in support of NOAA programs. The fourth of four newly constructed Fisheries Survey Vessels (FSVs), the *Bell M. Shimada*, will be operational in FY 2010 and will be homeported on the West Coast.

OMAO's Marine Operations Center (MOC) has Atlantic and Pacific regional offices located in Norfolk, Virginia, and Seattle, Washington, respectively, and the vessels are assisted by a small support staff at the home port of most ships. The centers provide maintenance, stores, supplies, and repair facilities for the vessels.

The NOAA Commissioned Corps is the nation's seventh and smallest uniformed service. NOAA Corps officers support the fleet and NOAA Line Offices. The majority of the NOAA Corps payroll is funded through the Marine Services line. The officers of the NOAA Corps command NOAA's research and survey vessels, fly NOAA's "hurricane hunter" and environmental monitoring aircraft, support field operations, and serve in a variety of technical and management positions throughout the agency.

### Aviation Operations

OMAO's Aircraft Operations Center (AOC), located at MacDill Air Force Base in Tampa, Florida, ensures the availability and readiness of NOAA's uniquely configured aircraft. AOC operates a fleet of 12 aircraft used as observation platforms equipped with comprehensive data-collection systems in support of missions related to the Earth's environment, coastal and marine resources, and severe weather.

In FY 2010, Aircraft Services will provide approximately 2,845 flight hours in support of NOAA missions. NOAA aircraft are fitted with specialized instrumentation for airborne research, airborne data collection, and observation. Two of NOAA's three WP-3D aircraft (the "Hurricane Hunters") and the G-IV high-altitude jet will be mission-ready with instruments and personnel for hurricane surveillance, reconnaissance, and research during the hurricane season from June 1 to December 1. NOAA's third P-3 has a mission that includes



NOAA Ship Pisces Launch



NOAA Gulfstream IV (foreground) with NOAA WP-3D Orion (background)



air chemistry and air quality research, remote sensing, oceanographic research, and other missions not involving flights in severe weather. The G-IV will also be mission-ready with instruments and personnel to collect data for West Coast winter storm predictions from January 15 to April 1. NOAA's Jet Prop Commander and Shrikes will be mission-ready with equipment and personnel for snow radiation surveys, flood forecasts, water management, and other background surveys throughout the year in Alaska and Northern United States. The Twin Otters will continue to operate throughout the coastal Atlantic, Pacific, and Gulf of Mexico, surveying living marine resources and conducting remote sensing missions. NOAA's premier remote sensing aircraft, the King Air, will fly throughout the coastal United States responding and collecting damage assessment imagery, testing new remote sensing technologies, and performing coastal mapping missions.

### NOAA CORPS RETIREMENT PAY (MANDATORY)

The retirement system for the uniformed services provides a measure of financial security after release from active duty for service members and their survivors. It is an important factor in the choice of a career in the uniformed services and is mandated by Federal statutes under Title 10, United States Code. NOAA transfers retirement pay funds to the Coast Guard, which handles the payment function for retirees and annuitants. Health care funds for non-Medicare-eligible retirees, dependents, and annuitants are transferred to the U.S. Public Health Service, which administers the health care program.

## FY 2010 BUDGET SUMMARY

NOAA requests a total of \$419,660,000 and 2,048 FTEs for NOAA Program Support. This total includes \$13,802,000 for Adjustments to Base (ATB) and 11 FTEs, and a net increase of \$22,032,000 and 23 FTEs.

### ADJUSTMENTS TO BASE:

The above ATB request includes a net increase of \$13,802,000 and 11 FTEs to fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

### PROGRAM SUPPORT - ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2010:

Program changes are summarized at the sub-activity level below. Detailed numeric breakouts are located in Chapter 5, *Special Exhibits*. Descriptions of each request by line item are located in the NOAA FY 2010 Technical Budget.

### CORPORATE SERVICES

**\$204,493,000**

NOAA requests an increase of \$7,057,000 and 3 FTEs in the Corporate Services sub activity, for a total of \$204,493,000 and 1,009 FTEs. This increase is comprised of one initiative:

**NOAA-Wide Corporate Services & Agency Management: NOAA requests an increase of \$1,763,000 and 3 FTEs to support compliance with Homeland Security Presidential Directive-12 (HSPD-12), Personal Identity Verification-II (PIV-II) physical and logical access requirements.** HSPD-12, PIV-II requires Agencies to comply with Federal Information Processing Standards (FIPS) 201 standards for secure and reliable identity credentials supporting both physical and logical (systems) access. NOAA has chosen to use



the DoD CAC as NOAA's HSPD-12 solution. NOAA must ensure re-badging of over 16,400 employees and contractors. Implementation of the DoD CAC solution to comply with OMB requirements under HSPD-12 provides NOAA cost avoidance/savings of over \$11 million over a 6-year period compared to implementation of the General Services Administration Managed Service Option. This increase supports the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs." Specifically, this increase supports the NOAA Mission Support Goal, Improve safety and other condition indices for facilities and platforms.

**NOAA Wide Corporate Services and Agency Management: NOAA requests an increase of \$4,345,000 and 0 FTEs to support acquisition and grants services for NOAA.** This investment will enhance NOAA's ability to provide dedicated personnel assets to increase the capacity of the acquisition and grants workforce sufficient to ensure successful obligation of the increasing volume of contractual and financial assistance actions. Additionally, requested funding will provide dedicated personnel and funding sufficient to implement an effective procurement oversight program. These resources will afford NOAA an opportunity to establish a Policy and Oversight Division (POD). The POD will implement recommendations made by the Government Accountability Office (GAO) in their June 2006 report to Congress (GAO-06-594, NOAA Acquisition Function).

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#### NOAA EDUCATION PROGRAM

**\$20,653,000**

NOAA requests an increase of \$4,000,000 and 0 FTEs in the NOAA Education Program sub activity, for a total of \$20,653,000 and 10 FTEs. This increase is comprised of one initiative:

**National Competitive Educational Grant Program: NOAA requests an increase of \$4,000,000 and 0 FTEs for the NOAA Education Program to support a national competitive educational grant program.** This request will enable NOAA to support a competitive national environmental literacy programs to promote excellence in informal and formal education related to ocean, coastal, Great Lakes, weather, and climate sciences. This request will allow additional 8 to 12 competitive awards to be issued per year. This grants program directly addresses the educational mandate established in the America COMPETES Act and providing support to improve America's science education enterprise, both the formal and informal components, strengthens our Nation's economy by improving America's competitiveness in the global market.



*Students Replanting Eelgrass in Gulf of Mexico*

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#### FACILITIES

**\$30,346,000**

NOAA requests an increase of \$8,776,000 and 4 FTEs in the Facilities Management and Modernization sub activity, for a total of \$30,346,000 and 4 FTEs. This increase is comprised of two initiatives:

**Facilities, Management, Construction, & Safety: NOAA requests an increase of \$4,500,000 and 0 FTEs to address critical facility deficiencies and repairs.** The FY 2010 request will support addressing the most critical repair and building system deficiencies, including projects to replace failing electric, plumbing, HVAC and building systems that have outlived their useful service lives; install required fire suppression and alarm systems; and address emergency power systems requirements. As NOAA's facilities age,



their condition continues to deteriorate due to historical underfunding of necessary repairs and building system replacement. Repair of the most critical building deficiencies in NOAA's facilities enables NOAA to provide safe working conditions for NOAA's employees, ensure NOAA facilities meet current code requirements, and address continuity and sustainability of operations requirements.

**Facilities, Management, Construction, & Safety: NOAA requests an increase of \$1,000,000 and 4 FTEs for to comply with legal requirements associated with execution of real property leases.** The FY 2010 request supports NOAA's compliance with GSA lease requirements through increasing both Federal and contract support to manage the increasing lease backlog. NOAA has been delegated from GSA responsibility for over 2,200 leases, supporting a diverse spectrum of activities, ranging from office and laboratory space, to space for NOAA tide gauges and weather forecast sensors on towers. NOAA faces an increasing lease workload: a growing holdover lease backlog (300+ expired leases that must be renegotiated to ensure the Government is getting the best value), and expiration of an additional 1,100 leases between FY 2010 and 2014). Failure to effectively staff this increasing workload will pose both a significant legal and financial risk, as well as increasing the potential for adverse financial audit findings.

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**OMAO**
**\$164,168,000**


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### Marine Operations and Maintenance

NOAA requests an increase of \$2,199,000 and 16 FTEs in the Marine Operations and Maintenance sub activity, for a total of \$164,168,000 and 1,025 FTEs. This increase is comprised of one initiative:



*111th NOAA Corps Basic Officer Training Class*

**NOAA Commissioned Corps: NOAA requests an increase of \$2,199,000 and 16 FTEs to increase the number of officers in the NOAA Commissioned Corps.** The request will support an end-strength of 321 NOAA Corps officers, and the funding request includes salaries, benefits, healthcare, pre-commissioning, permanent change of station (PCS), recruiting, and a third Basic Officer Training Course (BOTC) for the additional officers. Properly staffed platforms provide increased data collection and increased data quality, which is crucial to NOAA's missions. An expanded NOAA Corps will lower officer attrition rates by avoiding particularly long and arduous at-sea assignments. NOAA Corps officers serve at sea for longer rotations than officers in other maritime services, spending an average of 222 days per year at sea compared to the U.S. Coast Guard's 185 days and the U.S. Navy's 180 days. This puts NOAA at a disadvantage in recruitment and retention of officers. Additional officers also provide a response capability in times of natural disasters or other emergency situations.

